

The Commercial Car Journal

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Performance and Appearance

*Featured by Truck Makers at New York
National Motor Show*

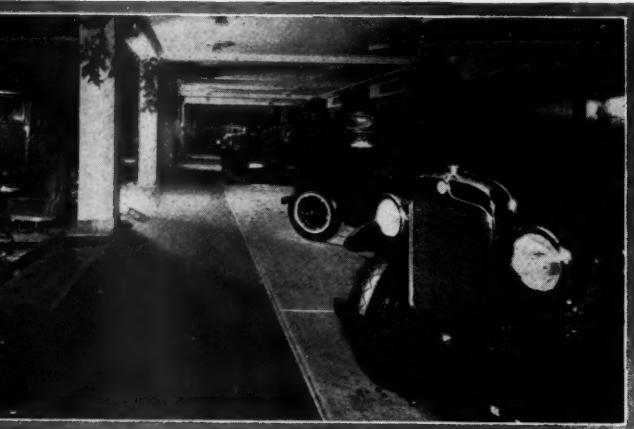
THE truck exhibits at the New York Show indicate that during the last year designers have continued to place emphasis on better performance, more attractive appearance and increased driver comfort. Fourteen makers are exhibiting this year and the exhibits include about 70 vehicles. The bulk of the models shown are

of low or moderate capacity due, in part, to the fact that the big, heavy duty jobs cannot be gotten into the exhibition hall.

The demand for greater flexibility and speed is reflected by the continued growth in popularity of the six-cylinder engine in the truck field. All but two of the exhibitors—Chevrolet and Pak-Age-Car—show models with this type of power plant while the entire exhibits of Corbitt, G.M.C., Larrabee, Reo, Rugby, Selden, Stewart and Studebaker are made up of six-cylinder models.

Pneumatic tires are used almost exclusively on the show models, the exceptions being mostly heavy duty jobs although some of these are fitted with pneumatics, duals usually being fitted on the rear wheels in these cases. With the higher speeds made possible by the more powerful engines and pneumatic tires, the use of four-wheel brakes is becoming increasingly common, at least eight of the exhibitors showing models with this type of brake.

If prices announced at the show may be taken as an indication a year of extremely keen competition is promised, particularly in the low price field. Chev-



General view showing parts of Graham Brothers, Reo and Selden exhibits

vrolet has reduced the price on its commercial chassis from \$395 to \$375 despite the fact that four-wheel brakes are now regular equipment. The new G.M.C. one-ton chassis with Pontiac engine and four-wheel brakes lists at \$745 and the price on the $\frac{1}{2}$ -ton with Pontiac engine is continued at \$585 although this model also is now equipped with four-wheel brakes. Graham Brothers is showing an attractive new panel body model on its four-cylinder, 108-in. wheelbase chassis, the complete job listing at \$770. Reo has a new one-ton model with six-cylinder engine and four-wheel brakes at \$995 for the chassis and Stewart is bringing out a $1\frac{1}{4}$ -ton job at \$1,295 and it also is a six with four-wheel brakes. Selden's new sedan de luxe delivery model lists at \$1,998.

Durant Motors, Inc., showed two truck models carrying the "Rugby" name which is the designation under which Star cars have been sold abroad. One of these is the successor to the Star Compound Fleettruck and has a six-cylinder engine and a special four-speed transmission. In addition, it is now equipped with four-wheel brakes.

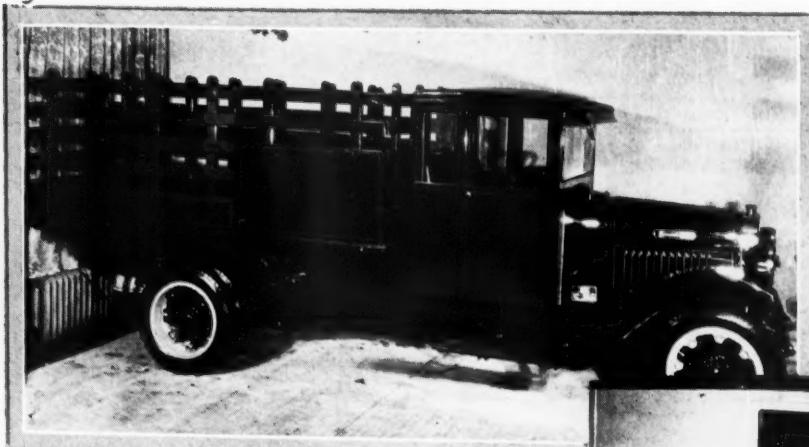
The other Rugby model shown is the new Durant "65" chassis which has six-cylinder engine and four-wheel brakes. It was shown with a panel delivery body. Prices on these jobs were not available on the opening day of the show.

The efforts being made to secure attractive appearance were most noticeable, of course, on the

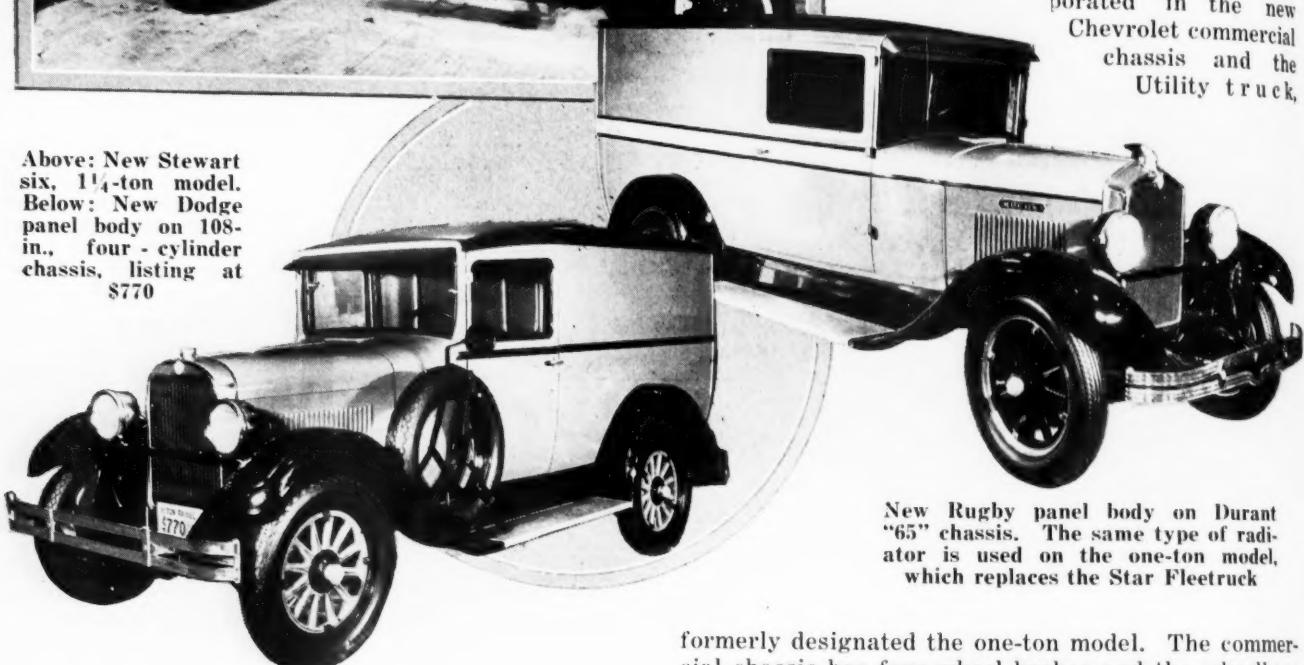
panel bodies as the utility requirements of other types do not lend them so well to artistry. Bright colors were common and many of the jobs were shown in attractive combinations. Such passenger car features as belt moldings, sun visors formed by an extension of the roof or the cadet type, nickelized headlamps are shown by a number of makers.

With the exception of a few stripped chassis, all models shown provide complete protection for the driver either as a part of the body or by means of a cab. In many cases the comfort and arrangement of the driving compartment compare most favorably with passenger car practice. Seats are well-upholstered, crank window regulators are provided, the controls are conveniently placed and, in many cases, one-piece windshields, hinged at the top, are employed. Incidentally quite a few of the panel jobs are fitted with a seat for the driver only so that he can get to the interior of the body easily from the front without using the doors at the rear.

The tendency of the truck manufacturers to meet the special requirements



Above: New Stewart six, 1 1/4-ton model.
Below: New Dodge panel body on 108-in., four-cylinder chassis, listing at \$770



An engine of increased power is incorporated in the new Chevrolet commercial chassis and the Utility truck.

Chevrolet

An engine of increased power is incorporated in the new Chevrolet commercial chassis and the Utility truck.

New Rugby panel body on Durant "65" chassis. The same type of radiator is used on the one-ton model, which replaces the Star Fleettruck

able not only because of the varied body styles exhibited but also because of the larger number of chassis models which a number of makers are providing as compared with a year ago. The most highly specialized design at the show, of course, is the Pak-Age-Car which attracted unusual attention because of its many unconventional features.

Although not exhibited, G.M.C. is bringing out a new 1 1/2-ton job, which will be designated as the T-21. This model has a 3 1/8 x 4 1/2 in. Buick six-cylinder engine, bevel axle, three-speed transmission, two-wheel brakes and is offered in 132, 138 and 150 in. wheelbase lengths priced at \$1,185, \$1,235 and \$1,285 respectively.

Larrabee-Deyo announced the addition of a new, fast, heavy-duty model rated at 4-5 tons, designed either for truck or bus use. Among the features of this new model are a six-cylinder, 4 1/8 x 5 1/4 in. Continental six-cylinder engine, four-speed transmission, double reduction rear axle, pneumatic rear axle, pneumatic tires with duals on the rear, and a wheelbase of 218 in.

American-LaFrance

The "Chief," a new model rated at 1 1/2 to 2 tons, was displayed by this company. This unit embodies a 60 hp. engine, four-speed transmission, four-wheel brakes, worm drive rear axle with torque arms, pneumatic tires and steel cab. Model W chassis of 2 1/2-3

ton capacity and the "Metropolitan" triple combination fire apparatus were also shown. The former has a 4-cylinder 4 1/4 by 6 in. engine, four-speed transmission and full-floating double reduction rear axle.

formerly designated the one-ton model. The commercial chassis has four-wheel brakes and the wheelbase has been increased to 107 in. Wheelbase of the Utility truck has not been changed and bodies are interchangeable on the 1927 and 1928 models except cabs.

Although developing 35 hp. at 2200 r.p.m. compared with 26 hp. of the former model the new engine retains the same cylinder dimensions, 3 11/16 by 4 in. Increased power output has been obtained by use of larger valves, 1 21/32 instead of 1 1/2 in., increasing the lift from 7/32 in. to 9/32 in., enlarging the inlet manifold passages 1/8 in. and employing larger jets in the carburetor. The exhaust manifold is now of two-part design.

Cast iron pistons are used in the truck engines and three 5/32 in. rings are used in place of three 3/16 in. rings formerly used. A fabric gear is used on the camshaft for quieter operation and two cover plates are now provided over the push rods.

The camshaft is 1/8 in. larger in diameter and the bearings are larger. Crankshaft bearings are of the same size as before, except the front, which has been lengthened 3/16 in. to 2 1/2 in.

The cooling system has been revised by the use of a larger radiator carrying about 1 quart additional water. The radiator is 1 1/2 in. higher and 7/8 in. narrower and a pressed steel shroud is used. Control of cooling water temperature is effected by a thermostat built into the front of the cylinder head. A crankcase breathing system has been developed by leading a pipe from the front end of the crankcase into the carburetor intake.

The four-wheel brakes used on the commercial chassis incorporate external rear brakes as used on the

light delivery unit before and front wheel brakes which are of the two-shoe expanding type. Shoes are of pressed steel and are pivoted at the bottom and operated by a cam at the top. Cams have a floating mounting permitting equalization between shoes. A brake proportioning mechanism applies pressure to the front brakes first, further movement of the brake pedal brings the rear brakes into action and the proportion of pressure on the rear increases rapidly as the pedal is further depressed. Internal rear wheel brakes are connected to the hand brake lever.

Front axles now have reverse Elliott ends with king pins increased in diameter to $\frac{3}{4}$ in. and are supplied with ball thrust bearings. Ratio of the steering gear has been increased to $9\frac{1}{2}$ to 1 and ball thrust bearings take the place of worm shaft bushings formerly used.

A new shock-absorbing spring design is incorporated in the commercial chassis. Both front and rear springs are fitted at both ends with reversed short spring leaves which serve to increase inter-leaf friction of the main springs.

The frame of the commercial chassis has been strengthened; side members are $4\frac{3}{4}$ in. deep and the flange is now $1\frac{3}{4}$ in. and the lower flange has a lip extending from the rear to a point forward of the front cross member. Tires on this chassis are 30 by 5 in. cords all 'round.

Frames and rear axles of the utility truck as well as transmission of both units remain unchanged from last year.

Corbitt

Corbitt Motor Truck Co., Henderson, N. C., exhibited a six-cylinder, 2-ton truck, model 46. The engine is a Continental $3\frac{3}{8}$ by $4\frac{5}{8}$ in., transmission a four-speed Brown-Lipe, clutch also of Brown-Lipe make and the rear axle a Timken worm. Equipment shown included a closed cab and open express body, pneumatic tires front and rear and electric starter and lights.

Federal

Nine trucks were shown by Federal ranging in capacity from one-ton to a $5\frac{1}{2}$ ton chassis. A one-



ton four-cylinder model with screen side body and a six-cylinder panel body of the same capacity were in the light-duty classification. Other models exhibited included a two-ton, four-cylinder job with stake body, a six-cylinder, two-ton unit with screen body and a dump body chassis, also of two-ton rating. The three two-ton units had four speed transmissions. Chassis were exhibited of the three-ton, six-cylinder with seven-speed transmission which is also employed on the three other chassis. The $2\frac{1}{2}$ -3 ton, $3\frac{1}{2}$ -4 ton and $5\frac{1}{2}$ ton chassis were powered with four-cylinder engines. Two-wheel brakes are employed on all the models exhibited.

G.M.C.

A new 1-ton truck equipped with six-cylinder Pontiac engine, four-speed transmission and four-wheel brakes and supplied with a complete line of factory-built interchangeable bodies was presented by General Motors Truck Co. Improvements in the de luxe delivery line of 1000 lb. capacity were also shown.

Both chassis are powered with the new series six-cylinder Pontiac engine which incorporates crankcase

The Chevrolet commercial chassis embodies four-wheel brakes



A panel body on the Chevrolet utility chassis

The new
American - La
France "Chief"
is rated $1\frac{1}{2}$ to
2 tons

ventilator, high compression head, improved water pump, new intake and exhaust manifold and improved carburetor. A gasoline filter and fuel pump are standard equipment. Flywheel, clutch and starting motor

are completely enclosed. Cylinder dimensions remain the same, bore being $3\frac{1}{4}$ and stroke $3\frac{3}{4}$ in.

The de luxe delivery chassis, known in the past as the T-10, is now designated T-11. Two types of bodies are available for this chassis, a de luxe panel and de luxe screen side. Wheelbase is 110 in. and road clearance $8\frac{1}{2}$ in. A spiral bevel semi-floating type rear axle is employed and the housing is of the pressed steel banjo-type, with torque tube drive. Tires are 29 by 4.75 balloons.

Front brakes are of the two-shoe internal type and the rear service brakes are external. The hand lever operates internal brakes on the rear wheels.

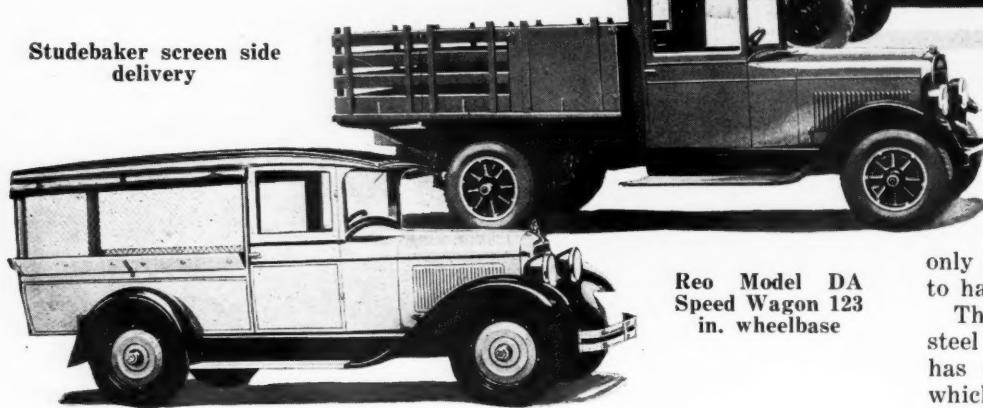
Ten interchangeable body units are made for the 1-ton chassis, to be known as T-19, and special attention has been given to driver comfort. Cab doors are all steel, 33 in. wide and a ventilating windshield is fitted.

Front axle is of the reverse Elliott type with adjustable ball type tie-rod and ball thrust bearings for vertical load. Rear axle is semi-floating with shafts and differential carried on ball bearings. Torque tube drive is employed.

Bendix brakes are used on the front wheels with external rear brakes for the service application. Internal rear wheel brakes are applied by the hand lever. The metal wheels, which have hollow spokes, mount 20-in. rims with 30 by 5 in. truck type pneumatic tires.

Standard equipment on the T-11 with panel or screen bodies includes speedometer, lighting and ignition switch with lock, automatic windshield wiper in addition to that usually supplied, and on the T-19 an AC air cleaner and under frame type tire carrier are furnished in addition to the T-11 items.

Studebaker screen side delivery



Buick engine models T-29, T-40 and T-50 as well as the K series ranging from $2\frac{1}{2}$ to 5-ton capacity will be continued.

Graham Brothers

Five sizes of trucks each mounting a different type of body make up the exhibit of Graham Brothers. The new panel body mounted on a four-cylinder, 108 in. wheelbase chassis was shown. The complete job lists at \$770.

The line ranging from the $\frac{1}{2}$ -ton delivery car to the 2-ton model are different in many respects than those shown a year ago. Four-speed transmissions and four-wheel brakes are used on the 2-ton and $1\frac{1}{2}$ -ton trucks, the former being powered by a six-cylinder

engine and the other models by four-cylinder engines. The 1-ton, $\frac{3}{4}$ -ton and $\frac{1}{2}$ -ton units embody three-speed transmissions and two-wheel brakes.

Larrabee-Deyo

Two models were shown by Larrabee-Deyo Motor Truck Co., Model A-3 rated at $\frac{3}{4}$ to 1-ton and X33 a 2-ton unit. Changes recently made in these chassis are: A 12-in. longer frame, use of Continental 12C engine and Columbia front and rear axles on model A-3; a redesigned brake hook-up on the larger unit. Greater cooling capacity, front and rear springs of higher carrying capacity and latest type Zenith carburetor are used on both models.

Pak-Age-Car

A new model of the Pak-Age-Car designed for retail delivery of milk is ready for the market and will be distributed by the Stutz Motor Car Co., Indianapolis, through its sales organization. The new delivery unit is larger in overall length and interior capacity. A feature is the fact that the width of the vehicle is



Selden Pacemaker with cab and stake body

Reo Model DA
Speed Wagon 123
in. wheelbase

only 56 in. which makes it easy to handle in traffic.

The body, which is made of steel and metal veneer panels, has a volume of 216 cu. ft. of which 160 cu. ft. may be used for loading. The body unit performs

the function of the frame in trucks of conventional design and the front and rear assemblies are attached directly to it.

Double transverse springs are used in place of front and rear axles. At the front the steering spindles are attached to the spring ends and a single flat leaf is employed as a steering tie-rod.

In the rear the engine, transmission, worm drive differential assembly, battery and water tank used in place of radiator are mounted as a unit and attached to the body by means of a ball and socket joint at the front and by two transverse springs. Drive is transmitted from the differential to the rear wheels by means of two propeller shafts, each including two metal universal joints. The entire power plant assembly may be removed and replaced quickly.

The engine is of the two-cylinder opposed type with bore of $3\frac{1}{8}$ and stroke of 3 in. Cooling follows sta-

tionary engine practice in which a copper tank and large hose functions as a hopper. The transmission provides two speeds and reverse, although the truck is operated in high under all normal conditions and an unusually large Borg & Beck clutch is employed to facilitate starting.

Reo

A feature of the Reo showing was the Speed Wagon Tonner which was described in the December issue. This model has wheelbase of 123 in., a unit power-plant incorporating a six-cylinder 3 1/4 by 4 in. engine, single-plate clutch and three-speed transmission. A



The Selden De Luxe delivery embodies a fabric body



tubular propeller shaft transmits power to a semi-floating rear axle. Four-wheel internal hydraulic brakes are used for service application and an external band brake at the rear of the transmission is used for parking. Lubrication of chassis is by Myers magazine oilers.

The Tonner model completes the new line of Speed Wagons manufactured by the Reo Motor Car Co., other models being the Speed Wagon Junior, Standard Speed Wagon for loads up to 1 1/2 tons, Master Speed Wagon for 2-ton loads. The line includes a chassis with kick-up over the rear axle rated at 1 1/2 tons, a 175-in. wheelbase model with double kick-up and bus chassis of 12 and 21-passenger capacity.

Roamer

A speed truck rated at 1 1/2-2 tons was displayed by Roamer Motors, Inc. This unit includes a six-cylinder engine 3 1/4 by 5 in. Salisbury front axle, Clark rear axle, Durston transmission and Borg & Beck clutch. Wheelbase of this model is 136 in.

Rugby

A truck chassis with the propeller shaft driven by electric motor was used to show the operation of the four-speed transmission with direct drive in high and an internal gear type of third speed embodied in the Rugby truck model which replaces the Star Fleet-

truck. A six-cylinder engine and four-wheel brakes are incorporated in this unit.

A panel delivery body mounted on the Durant "65" chassis was also shown. A six-cylinder engine, 2 1/8 by 4 1/4 in., three-speed transmission, bevel gear rear axle and four-wheel brakes of the Bendix type are used in this model.

Schacht

The LeBlond-Schacht Truck Co. is producing a new six-cylinder model rated at 2 tons which was exhibited as was its 2-yd. Roadmaker dump truck. The new unit has a Wisconsin overhead valve engine with six cylinders 3 3/8 by 5 in. The transmission has four speeds forward and a double reduction rear axle is employed. The frame is 6 in. deep and wheelbases of 140, 152 and 180 in. are supplied. The makers guarantee a pay load capacity of 3 1/2 tons for this unit. Coupe cab, electric starter and lights and 32 by 6 in. tires, dual on the rear wheels, are standard.

The Roadmaker model is rated at 3 1/2 tons and has a wheelbase of 132 in. Stand-

ard equipment includes a 2-yd. steel body with side boards and division gate, underbody hydraulic hoist and 32 by 6 in. tires all 'round with duals on the rear. The body is 6 in. wider at the rear than the front to facilitate clean dumping.

Selden

Selden exhibited for the first time a "sedan de luxe" delivery unit with a fabric body of distinctive appearance. Rated capacity is 3/4 to 1 ton and speeds up to 50 or 60 m.p.h. are possible. Power which is obtained from a six-cylinder engine developing 44 1/2 hp. is transmitted through a dry multiple disk clutch and a three-speed transmission to a bevel gear rear axle. Wheelbase is 130 in. and pneumatic tires 30 by 5 in. are mounted front and rear. The radiator shell is polished cast aluminum. Electric lights and starter, dash type motometer, speedometer and gasoline indicator are furnished as standard equipment.

The new Pacemaker model has rated carrying capacity of 2 tons and speed of 50 m.p.h. Power is furnished by a six-cylinder 3 1/4 by 4 5/8 in. engine with seven-bearing crankshaft. The carburetor is a Stromberg, type Tx, and air cleaner and oil filter are supplied. The clutch is of the multiple dry disk type and

it is mounted in a unit with the engine and a three-speed transmission. The two-piece propeller shaft has metal joints and a self-aligning center bearing. Both service and hand brakes are internal type on rear wheels. The pedal actuates both sets of brakes.

Wheels are steel and are equipped with 32 by 6 in. tires front and rear. Electric lights and starter and dash type motometer are furnished in addition to the usual equipment. A de luxe cab is supplied and it is constructed with a fabric roof applied over expanded metal lath and is insulated from the cowl by rubber molding.

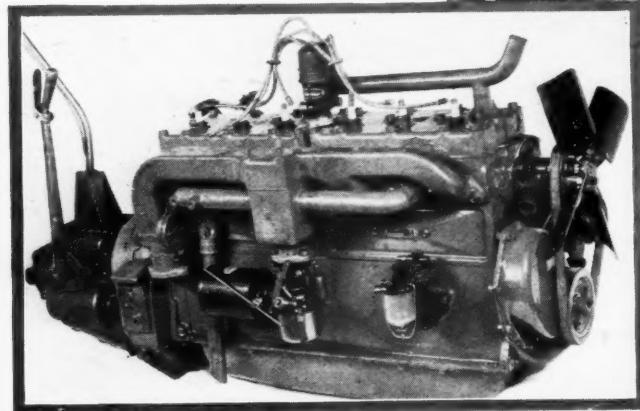
The Roadmaster model has a six-cylinder engine 3 3/4 by 5 in. and a four-speed transmission is employed. A B-K vacuum booster is used on the service brakes, operating both internal brake bands on each rear wheel. This chassis is rated at 3 tons and a speed up to 50 m.p.h.

Stewart

Stewart Motor Corp. announced price of \$1,295 for the new 1 1/4-ton chassis with six or four-cylinder engine. This unit is available with wheelbase of 130 or 145 in. and 32 by 6 in. tires are used all 'round.

A new model exhibited was the 1 1/2-ton which is available with either four or six-cylinder engines at the same price, \$1,645. Standard wheelbase is 145 in. and a special short wheelbase of 135 in. for dump work and long wheelbase of 160 in. are offered.

Three-shoe Bendix brakes are employed on four wheels and no equalizer is provided. Rear axle is of the bevel gear type with a straddle mounted pinion.



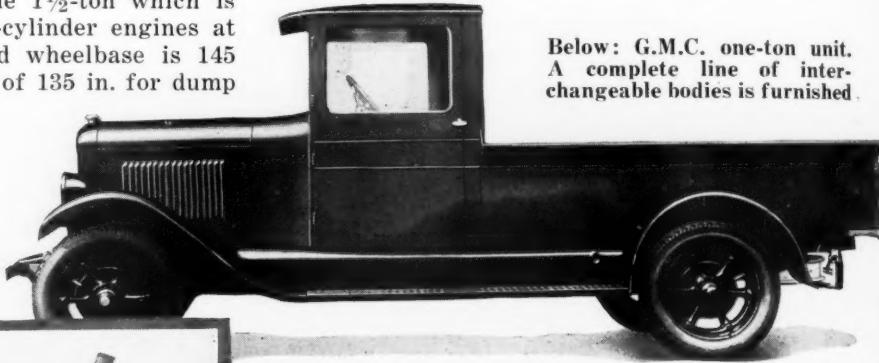
Other models were: 3/4-ton, six-cylinder, Buddy 1-ton with six-cylinder engine and four-wheel brakes, models 25 and 25X of two-ton rating with either four or six-cylinder power plants, Model 18X, 2 1/2-ton, Model 19, a three-ton unit and the four-ton Model 22.

Studebaker

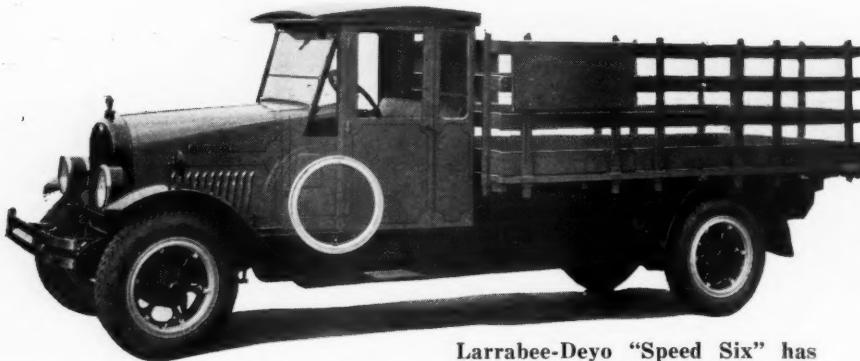
A 3/4-ton high speed delivery car was presented by Studebaker. A six-cylinder engine and four-wheel brakes are incorporated in this unit which lists at \$1,195 at the factory with screen or panel body.

The body of this truck has a low roof line which is accomplished by fastening the sub-frame directly on the chassis frame. Built-in wheel housings are employed and this construction makes possible greater body width. Total capacity of body loading space is 123 cu. ft. The interior of the body is coated with engine enamel to prevent absorption of moisture.

Two folding seats are placed over a full width tool box in the driver's compartment. Equipment includes gasoline gage, engine thermometer, automatic windshield, rear view mirror and coincidental lock.



Below: G.M.C. one-ton unit.
A complete line of interchangeable bodies is furnished.



Larrabee-Deyo "Speed Six" has capacity of 1 1/2 to 2 tons

Willys-Overland

Left: One of the new series six-cylinder Pontiac engines used in the G.M.C. one-ton unit

WILLYS - OVERLAND, INC., has brought out a line of four trucks, which it announced during the show period, all powered with six-cylinder Willys-Knight engines and equipped with pneumatic tires and internal four-wheel brakes. The capacity ratings are 1, 1 1/2, 2 and 2 1/2 tons. All models have unit powerplants, single plate clutches, pump cooling, battery ignition, electric starting and lighting, seven-bearing crankshafts, vacuum fuel feed from tank under the seat, tubular propeller-shafts, Hotchkiss type drive and metal spoke wheels.

Prices follow: One-ton, \$1,095; 1 1/2-ton, 134 in. wheelbase, \$1,545; 151 in. wheelbase, \$1,595; 2-ton, 150 in. wheelbase, \$1,945; 164 in. wheelbase, \$1,995; 2 1/2-ton, 150 in. wheelbase, \$2,545, and 164 in. wheelbase, \$2,595.

The 1-ton model has a wheelbase

of 130 in. and the chassis weighs 2775 lb. It has a 2 15/16 x 3 1/8 in. engine, three speed transmission, spiral bevel rear axle with 6 1/7 to 1 reduction and 30 x 5 in. tires. The 1 1/2 ton job is offered in 134 and 151 in. wheelbase lengths weighing 3300 and 3400 lbs. respectively for the chassis. Its engine has a bore of 2 15/16 and a stroke of 4 3/8 in. The transmission pro-

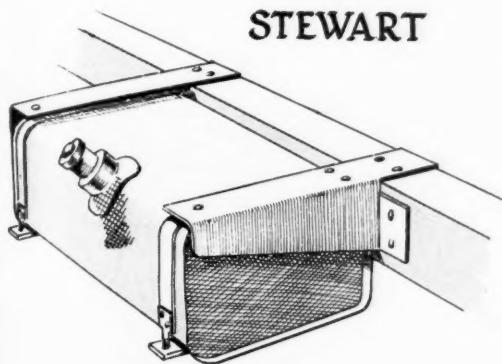
vides three speeds forward and the tires are 30 x 5 in. front and 32 x 6 in. rear. The spiral bevel rear axle provides a reduction of 5.66 to 1.

Two wheelbase lengths are available on the 2-ton chassis also, the respective lengths and weights being 150 and 164 in. and 3800 and 3900 lbs. The engine

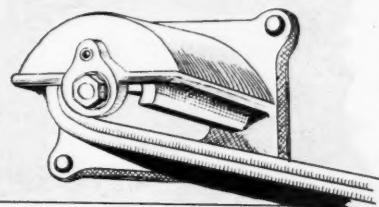
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Sketches Made at the New York Show

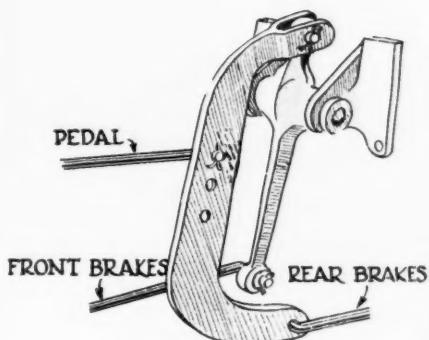
STEWART



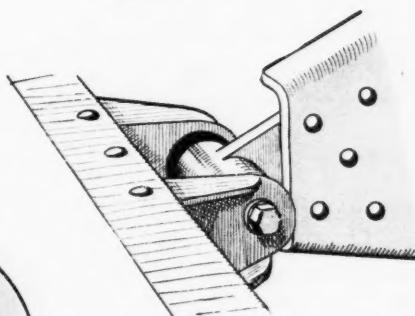
GRAHAM BROS.



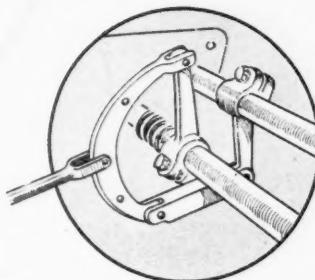
G.M.C.



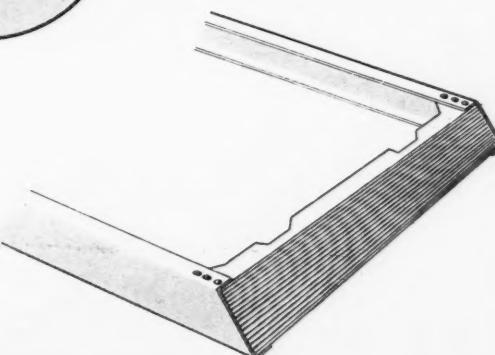
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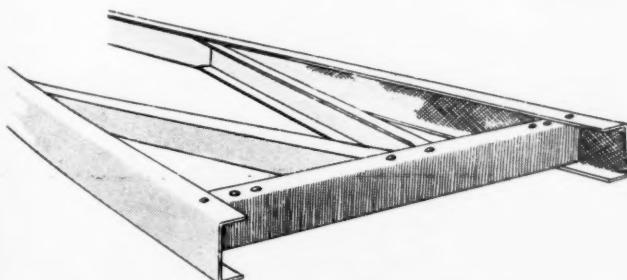
CHEVROLET



FEDERAL



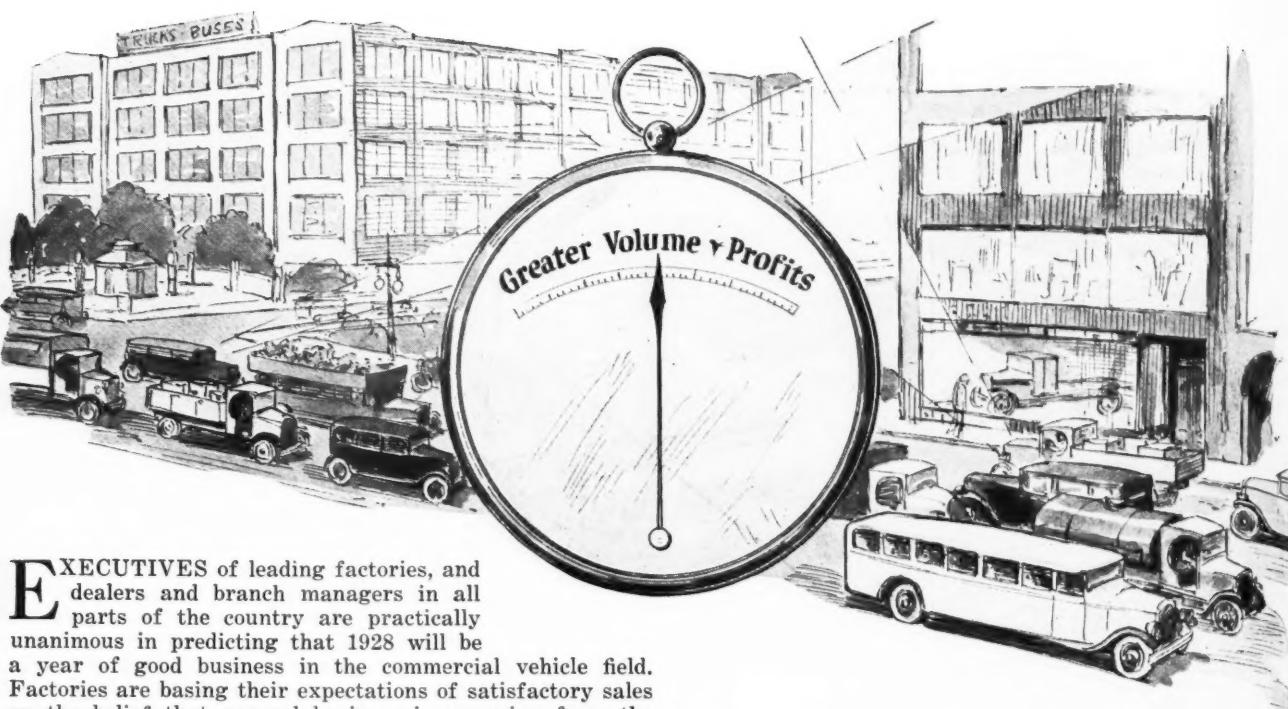
LARRABEE



Stewart—The gas tank of the Stewart six-cylinder truck is mounted on the side of the frame. **Graham Brothers**—Two leaves are bent around the eye on the front end of the rear spring on the Graham Brothers six-cylinder truck. **G. M. C.**—Brake hook-up on the new G. M. C. T-19 with Pontiac engine. **Chevrolet**—A double cross shaft is employed in the equalizer between front and rear brakes of the Chevrolet commercial chassis. **Reo**—Pressed steel front engine mounting of Reo is supported in rubber. **Larrabee-Deyo**—Larrabee-Deyo employ two long diagonal braces at the rear of the frame. **Federal**—A sloping rear cross member is embodied in the frame of the Federal T-20 tractor

Factories and Dealers

1928 Will Be a



EXECUTIVES of leading factories, and dealers and branch managers in all parts of the country are practically unanimous in predicting that 1928 will be a year of good business in the commercial vehicle field. Factories are basing their expectations of satisfactory sales on the belief that general business is emerging from the recession experienced during the last few months and that the trend will be steadily upward during 1928.

There is no doubt that industry is increasing its pace, that inventories are at low levels and that the situation in the agricultural areas is better than it has been for some time past; all of which portends a favorable development of business this year. In addition a huge road-building program is being carried on which will afford immediate and future stimulation to truck sales. Of importance also from a manufacturing standpoint is the favorable outlook for export business, as foreign markets are expected to absorb an even larger total of commercial vehicles in 1928 than in 1927, when a new record was established.

Similar optimistic views are held by the trade. Of nearly 150 reports received by COMMERCIAL CAR JOURNAL from dealers and branches in practically every state in the Union, approximately 70 per cent express the opinion that the outlook for this year is good while practically all of the remaining minority rate prospects as "fair." These opinions are the result of individual analyses of conditions prevailing locally and should be a rather accurate indication of the probable course of business this year.

Both truck production and domestic sales should show a substantial gain in 1928 over last year if these expectations of factories and trade are fulfilled. A year ago new policies governing instalment sales of motor trucks were being put into effect, and this factor together with a tendency to handle used trucks more conservatively was responsible in part for last year's reduction in volume. In addition, business generally in 1927 did not attain the high levels established in 1926. With business on the upgrade, however, and with a year's experience under the more stringent selling policies inaugurated a year ago, the signs point to a volume in 1928 that will be considerably larger than last year and possibly will exceed 1926 record figures and to profit possibilities greater than in either year.

In the heavy duty field, A. J. Brosseau, chairman of the National Motor Truck Committee of the National Automobile Chamber of Commerce and president of Mack Trucks, Inc., states that the outlook "is better than it has been for some time." Continuing, he says: "I believe that progressive improvement will be shown by the companies who make a quality product and have adhered to sound credit policies.

"The expansion of the commercial vehicle market has not by any means reached its peak. The need for more and better motor transportation was never more keenly felt by business men. The growth of sales, however, will necessarily involve close study of the requirements of operators by engineers capable of designing the types that will reach new buyers.

"Business in general is good and should be better in 1928. Manufacturers and merchants of trucks and buses will share in the gains in prosperity."

Exceedingly keen competition undoubtedly will continue in 1928. This is particularly true in the low price field where, according to G. A. Ek of the Chevrolet Motor Co., "the competition for business will be materially increased by the entry of at least two manufacturers who have not been in it before," presumably both companies being at present makers of passenger cars only. Moreover, Ford again will be an important factor this year. Mr. Ek also cites the improvement in the agricultural situation and increased activities in the road-building and building construction fields, as providing sound reasons for good business this year.

Commenting on the general business situation and its relation to our own industry, Myron E. Forbes, president of the Pierce-Arrow Motor Car Co., says: "The complexion of this country's most important 'key' industries has changed so decidedly for the better during the last few weeks that even the most conservative judgment would pro-

Agree That

Good Truck Year

Increased Activity of Business Generally and Continued Improvement in Truck Selling Methods Expected to Result in Larger Volume and Better Profits

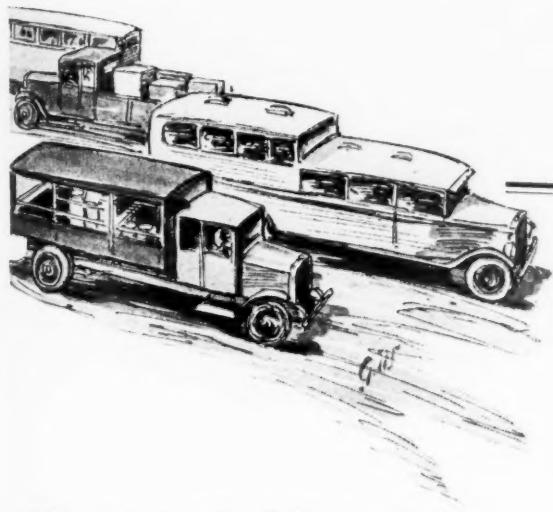
nounce these developments as the forerunners of a substantial business expansion.

"Declining production and dwindling inventories of basic necessities during the last half of 1927 are bringing about shortages which in turn will stimulate a resumption of output. In certain industries, notably steel, automobiles and railroad equipment, a renewal of productive activity already is under way, for the accumulating buying demand is beginning to make itself felt.

"The year now closing has been a year not only of severe competition, small margins of profit and dull business in certain localities, but a year of readjustment. New tendencies in highway transportation have dictated new developments in motor vehicles for hauling of both passengers and freight, as well as revamping of manufacturers' lines to a certain extent. Most of this work has been accomplished and we look forward eagerly to 1928 as a year of renewed activity in selling.

"The trend in truck transportation is toward lighter and faster units, enabling the operator to cope with present-day traffic congestion and making possible greater flexibility and economy in the operation of delivery fleets. This inevitably leads to larger fleets.

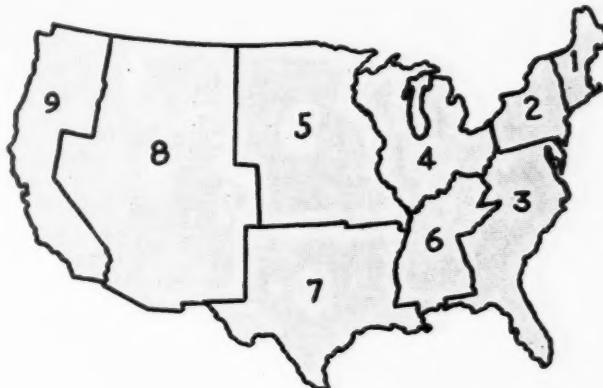
"So far as the White Company is concerned, we are ready to meet the conditions of the new year. This growing tendency toward lighter and more flexible units has neces-



"The great strength of the present situation, of course, lies deeper than the condition of any one industry. It is based, I believe, upon the widest distribution of wealth that this country has ever known and upon the desire of our population to invest and spend that wealth so as to maintain and improve the standards of living to which they have become accustomed."

In a similarly optimistic vein is a statement issued by Walter C. White, president of the White Company, in which he says:

"Business prospects for 1928 in the motor truck and bus industry indicate a much better year than 1927 turned out to be. Most manufacturers have studied and analyzed general conditions as reflected in business reports from all parts of the country, have sized up the readings of the so-called 'barometers' of business and agreed in the prediction that the new year will be one of greater volume and prosperity—possibly the biggest year in the history of the automotive industry.



Tabulation of Trade Survey Replies

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Totals
How do your new truck sales in 1927 compare with 1926?	Larger 4	13	3	18	16	10	6	6	8	90
	Same ..	2	1	8	2	1	1	..	..	15
	Smaller 6	11	3	10	2	4	6	..	1	43
How will your net profits on truck business in 1927 compare with 1926?	Larger 6	10	8	18	12	8	7	5	6	80
	Same 2	3	2	5	3	2	1	..	..	16
	Smaller 4	13	3	12	2	4	5	..	1	44
How does your used truck inventory compare now with what it was at the end of 1926?	Larger 1	3	3	11	4	1	1	..	5	29
	Same 2	7	4	7	7	3	2	..	1	33
	Smaller 7	16	6	19	9	9	10	5	3	84
What is the outlook for truck sales in your territory for 1928?	Good 6	19	9	29	14	7	7	6	7	104
	Fair 3	4	4	8	6	8	5	..	2	40
	Peer 1	3	..	..	..	..	1	..	..	5

sitated production changes. New White models of light delivery and fast express trucks, introduced during 1927, are in full production now. The latter part of the year has witnessed the cleaning up of repossession and other unavoidable obstacles."

M. L. Pulcher, president of the Federal Motor Truck Co., "cannot see anything on the horizon that should, in any way, retard business to any great extent. The truck business is closely allied to general business, and if general business is good then the truck business is equally good." Continuing he says: "We cannot see anything in the presidential year that would retard business in any way because there are no eccentric planks in the program of either party. There is an enormous road-building program going on which will make for more roads on which to operate trucks. Competition will be keen but the manufacturer with the best manufacturing and distributing set-up should get a very good business in 1928."

Usually at the beginning of a presidential-election year, considerable uncertainty develops based presumably on the effects possible political changes may have on business. None of this uncertainty seems to exist this year, however, in part at least for the reasons pointed out by Mr. Pulcher. George A. Brockway, president of the Brockway Motor Truck Corp., also comments on this point as follows: "While it is doubtless true that no one can foresee the outcome of the presidential campaign so far as it affects general business, I believe it is the opinion of the leading business executives, bankers and others that any radical changes which might be promulgated will meet with little support from the rank and file. The average mechanic or other workman is better read and acquainted with economic problems than ever before, and I feel that his support will be given more and more as time goes on to only sound and conservative policies."

On truck sales and business generally, Mr. Brockway says: "From the viewpoint of this company, the outlook for motor truck sales in 1928 is bright. Unfilled orders are heavier than usual at this season and our active selling personnel is enthusiastic over the general outlook for the coming year. In my opinion, if general business conditions are not disturbed by legislation, there is nothing but prosperity in sight for, at least, the first six months of the new year."

All business has been going through a transitional stage since the war but conditions are becoming more nearly stabilized and consequently more favorable to good business, as Carl Parker of the Reo Motor Car Co. sees it. He says: "Commercial vehicle business in 1928 should be as good as any year in its history, or better. We have been going through what may be called the Transitional Period in merchandising. Lines that were pretty well defined at one time have been more or less crossed up recently and distributors of merchandise have been in the state of flux."

"For example, the power laundry machine for the home gave the laundryman a lot of competition and he immediately countered by putting on a wet wash campaign and has already taken some reprisals. Another example is the case of the rapid growth of the baking industry, which is eliminating to an appreciable extent the baking of bread and cakes in the homes but in turn has hurt the sale of bread and cake pans in the hardware stores."

"One could outline several columns of cases of this kind all within a period practically since the war. The lines

NINETEEN twenty seven was a year of readjustment for the truck industry. The effects of the readjustment were more severe than they might otherwise have been for the reason that last year business generally did not attain the heights that were reached in 1926. Nevertheless there is no doubt that the readjustment that took place in the year just ended was beneficial and that, as a result of it, the industry enters 1928 in a sounder condition and better able to realize on the promise of general prosperity which the immediate future holds forth.

There is no need for discussing in detail the evils that have crept into the time selling of motor trucks and the handling of used trucks, nor is it inferred that these have been entirely eliminated. But a start was made in 1927, and further progress will be made in this and succeeding years until profits earned by the trade and by the factories producing the trucks are on a satisfactory level.

have become more clearly defined the last year or two and these different tradesmen can now see their way clearly ahead and are competing with each other more strongly than ever before through their delivery service."

Mr. Parker also sounds a note of warning in regard to adverse legislation affecting the motor truck, as follows: "Truck users, automobile dealers and manufacturers must give more serious thought to prevent legislation affecting truck operation as well as to constantly watch any newly attempted legislation especially when it is in the nature of throttling the use of motor truck. The need for uniform legislation throughout the states is too apparent for discussion."

Further confirmation of the belief that 1928 business will be good is found in a letter from J. W. Stephenson of the Indiana Truck Corp., who states: "The outlook for truck sales in 1928 is remarkably good. I base my opinion in regard to the truck business

being exceedingly good on the optimism shown throughout our entire branch and distributor organization, the interest manifested in a large number of inquiries received daily by mail and telegraphic communications and our distributors and dealers' survey taken only recently, which discloses that they have a larger number of interested prospects as this year closes than at the close of any other year in our history. Fundamental business conditions are bound to be good and a great many sales areas will be greatly improved over what they were in 1927."

Similarly optimistic is F. T. Macrae, Jr., president of National Motors Mfg. Co., who says: "In my opinion, 1928 will be even a better motor truck year than 1927 has been and judging by the volume of motor truck business that we have received in the last half of 1927 as compared with the first half of the year, we believe we can look for a very substantial increase over 1927 figures. Our last six-month period shows such a decided increase in volume over our first six-month period that when you stop to consider that this is contrary to our experience in former years, we can not help but feel very optimistic about the outlook for 1928."

"The progress that has been made in the building of better roads both in this country and abroad without a doubt has been reflected in the improvement of our motor truck business in the last half of 1927 and points very clearly to a broadening of the motor truck market for 1928."

Good business is forecasted for California by L. H. Bill, president of Fageol Motors Co., who says in part: "The country on this coast, generally, is in a prosperous condition. While some of the products of the ranches have brought extremely low prices, still other products have brought very good prices to offset and, as a whole, the country folks have put money in their purse, and then, too, there is a constant increase in our population. Furthermore, new manufacturers are starting on this coast everywhere. Here in Oakland alone the Chamber of Commerce reports a new industry for each day of the year. All this points to prosperity, and we certainly can see nothing but sunshine for the next year."

Watts L. Moreland, vice-president of the Moreland Motor Truck Co., takes an opposite view of the outlook for sales in the California market. He states that 1927 sales were about 25 per cent under 1926 and continues: "We see no reason why business for 1928 should be any better than

(Turn to page 32, please)

464,000 Trucks Produced in 1927

*Exports Increase 50 Per Cent—Light
Trucks Make Favorable Showing*

By Donald Blanchard

TRUCK production in the United States and Canada amounted to 464,000 in 1927, a decrease from the record total of 491,353 manufactured in 1926. Among the more important factors contributing to this reduction were the following:

Activity in most lines of business did not attain the high levels in 1927 that were reached in 1926.

Sales were restricted by the adoption of policies late in 1926 designed to eliminate the unsound credit risk from the prospect file and to assure adequate down payments and shorter terms.

Over-selling in previous years.

A tendency to place used truck trading on a more conservative basis.

Cessation of Ford production for a large part of the year.

Offsetting these factors tending to reduce sales was a 50 per cent increase in export business. In 1927 total sales of trucks to foreign markets were in excess of 100,000 as compared with 68,174 in 1926. (This total does not include overseas shipments from Canada of motor trucks of U. S. design.)

Registrations of motor trucks during the year increased about 8 per cent to a total of 2,985,000.

If production of trucks in the United States less U. S. exports is taken as a measure of sales in this country, the 1927 total is 330,000 units as compared with 386,209 in 1926, representing a 14 per cent decrease in domestic sales. In other words the recession in domestic sales was sharper than a comparison of total production figures would indicate due to the large increase in export business.

Part of this decrease in sales, of course, is due to the fact that Ford was out of production for about half of the year but it is obviously impossible to estimate just what the net effect of this condition was.

Ford production for 1927 is variously estimated at from 60,000 to 80,000 as compared with 212,800 in 1926 and a record output of 269,400 in the preceding year. In 1923 he produced 59 per cent of all trucks manufactured, in 1926 40 per cent and last year in the neighborhood of 15 per cent. A reduction of this magnitude naturally has a drastic effect on the industry's totals.

The reduction in the wholesale value of motor truck production from \$433,000,000 in 1926 to \$367,000,000 is a natural consequence of the decline in production, although the loss in dollar value amounted to 15 per cent as compared with a 6 per cent production decline. The average wholesale price of the motor truck dropped from \$891 to \$792, or about 11 per cent. The sharp cut in Ford production tended to raise the average price but this evidently was more than offset by the large decreases in output registered by models rated at 1½ tons and at 3½ tons and over which, of course, sell at relatively high prices.

Truck exports from the United States will total at least 102,000 for the year and possibly several thousand more. Of this total about 80,000 were of one ton or less capacity representing a gain of 54 per cent over the preceding year. Exports of trucks of more than one ton but less than 2½ tons amounted to 17,000 or a 31 per cent gain over 1926. Only a five per cent gain was registered by models rated at

Comparison of 1927 and 1926 Figures for the Truck Industry

	1926	1927*	Per Cent Gain or Loss
Production	491,353	464,000	— 6
Wholesale value	\$433,000,000	\$367,000,000	— 16
Average wholesale price	\$891	\$792	— 11
Domestic sales (U. S. Prod. less exports)	386,209	330,000	— 14
Registrations	2,764,222	2,985,000	+ 8
Exports	68,174	102,000	+ 50
Domestic sales—one ton or less	301,000*	270,000	— 10
Exports—one ton or less	52,000	80,000	+ 54
Domestic sales—over one ton but less than 2½ ton	52,000*	32,000	— 38
Exports—over one ton but less than 2½ ton	13,000	17,000	+ 31
Domestic sales—2½ ton and over	34,000*	27,000	— 21
Exports—2½ ton and over	2,300	2,400	+ 5
Ford percentage of total production	40	15	
Buses in use	80,000	90,000	+ 12

*Estimates

Truck Production by Capacities

Per Cent of Total		Size	1926	1927	Per Cent Gain or Loss
1926	1927				
13.1	16.2	3/4 ton or less	64,141	75,126	+ 12
64.6	65.5	1 ton	317,900	304,335	— 4
9.5	6.6	1½ ton	46,658	29,702	— 36
4.7	5.2	2 ton	23,174	24,250	+ 9
3.2	3.5	2½ ton	15,758	16,602	+ 5
1.4	.8	3½ ton	6,711	3,590	— 46
1.4	.8	5 ton	6,834	3,872	— 43
2.1	1.4	Over 5 ton and spec.	10,177	6,523	— 46
100.0	100.0		491,353	464,000	— 6

2½ tons and over, the 1927 and 1926 totals being about 2400 and 2300 respectively.

Domestic sales of motor trucks rated at one ton or less decreased to approximately 270,000 from about 301,000 in 1926, a loss of 10 per cent. Trucks of more than one ton but less than 2½ tons capacity suffered a loss in U. S. sales of about 38 per cent, the 1927 total being in the neighborhood of 32,000. Sales of trucks of 2½ tons or more capacity declined to about 27,000 vehicles last year, a decrease of 21 per cent.

As pointed out previously, total domestic sales of trucks declined about 14 per cent last year from which it is evident that sales of light trucks—those of one ton or less rating—with a 10 per cent decrease, held up better than did sales of trucks generally. On

the other hand sales of the larger capacity models fell off much more sharply than did total truck sales, as is indicated by the reductions of 38 and 21 per cent.

Further evidence of the fact that the recession in truck sales affected the larger capacity models most seriously is found in the analysis of production by capacity classes. Output in the 3½ and 5-ton capacity groups declined 46 and 43 per cent respectively, while the production of special types including buses and of trucks rated at more than five tons decreased 46 per cent. The 1½-ton group also suffered a loss of 36 per cent. The one-ton group with a loss of 4 per cent substantially held its own. The 2½, 2 and 3/4-ton and less classifications showed gains of 5, 9 and 12 per cent respectively. The gain of the 3/4-ton group probably was due in part to the Ford situation.

Major 1927 Features Were

- ¶ *More Conservative Selling Methods*
- ¶ *Demand for Fast, Pneumatic Tired Trucks*

By A. J. Brosseau

Chairman National Motor Truck Committee, National Automobile Chamber of Commerce, and President of Mack Trucks, Inc.

CONTINUED rapid expansion in the use of motor trucks prevailed during 1927, with the truck finding an ever increasing sphere of usefulness as the chief agency of local distribution and collection of freight.

Steady progress has also been made in adapting the motor bus to the transportation needs of the country. Bus registration has reached a total of about 90,000 units in operation on January 1928, as compared with 80,000 a year ago.

From the truck manufacturing point of view, two trends in particular marked the year.

First was the demand for high-speed, pneumatic tired vehicles; and second increasing conservatism in selling methods. Both had a pronounced effect upon the market, and the latter brought portents of better business in years to come.

The demand for increased speed is partly a reflection of the intensity of modern business competition and partly the result of traffic conditions. There seems to be an increasing disposition on the part of state motor vehicle commissioners to insist that trucks must keep up with, and not retard, the flow of other traffic on the highways. Annoyance to drivers in shifting gears on hills and resulting increased cost of maintenance are other factors. More and more heavy trucks are being equipped with pneumatics in an effort to check the trend toward lighter vehicles so equipped.

Conservatism in selling methods has followed a period of "production" selling under the theory that



A. J. Brosseau
Chairman National Motor
Truck Committee

the lower overhead made possible by quantity production was sufficient to warrant a considerable volume of risky selling. Whatever the merits of this theory may be, there remains no doubt in the truck industry that the pendulum toward it swung much too far. Conservatism of the past year in selling has been expressed largely in the granting of credit. Not much business has been sought at terms of less than 25 per cent down and the balance in 12 months, and little has been accepted. Further reforms are in sight in the matter of allowances for used trucks taken in trade.

Theoretically, selling methods are of little interest to the operating industry, but actually they are of prime importance in that part of the industry devoted to professional hauling. Eagerness of manufacturers to obtain volume of sales in 1925 and 1926 led to the placing of more equipment in this field than there was demand for, which in turn led to the acceptance of business by haulers at rates too low to yield a profit, and frequently so low as to make it impossible to pay for equipment obtained from manufacturers on small down payments. Decrease in demand for heavy duty trucks in 1927 was due to a considerable extent to this tightening of credit and absorption of trucks for which there was little or no economic need when sold during the previous two years. Such trucks should be fully absorbed by now, making the 1928 market much more promising than during the last few years. Important as the hauling field is,

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Service Sales May Be Increased



After a truck has left the shop the valves are ground by a mechanic in the machine shop

IT frequently happens that the amount of repair work which an owner orders depends upon how much the shop can complete within a limited period during which the vehicle can be spared. Knowing this fact many alert service managers have brought about a marked increased in service sales by making special arrangements to do more work on a vehicle in a given time or to reduce the idle time of a vehicle for any one of the more frequently executed service operations.

The means adopted for this purpose come under two general headings: "teaming" mechanics so that two or three jobs are carried on at the same time and carrying in stock repaired assemblies which are exchanged for corresponding parts of customer's vehicles. A third aid, which comes properly under the classification of general shop efficiency, is that of a rather elementary time-study of the elements of various jobs and a consequent scheduling to cut down the time the vehicle is in the shop.

Perhaps the most popular of the combination jobs is that involving cleaning carbon and grinding valves and relining brakes. The two operations can be carried on with a minimum of interference of mechanics with each other.

Due to the fact that this combination gives an immediate and noticeable improvement in performance it is easier to sell than most other combinations. If the two jobs can be completed in the time required for either it is easy to point out to the owner the advantage of having both done while the truck is out of service.

The carbon and valve-brake job can be put through in one-half day or less in most instances. To keep time required at a minimum it is necessary that part of the work be done in advance. On the valve job if the engine is of the L-head type it may be worth while to have a set of refaced valves on hand for exchange, not because the re-facing takes much time, but because the man operating the valve refacing machine may be busy at the time.

Draining the cooling system and filling it again takes too much time in many establishments. One service manager who has made a study of combination jobs and has timed the elements of many operations found that many minutes were wasted at the end of each carbon and valve job in filling the radiator again. The only available water spigot was located at the back of the shop and by the time a mechanic hunted up a pail and made two trips for water

By *Teaming Mechanics
Stocking Assemblies*

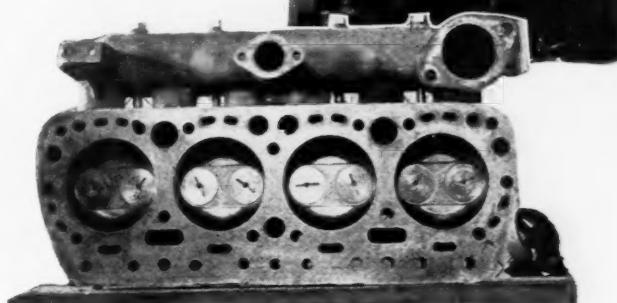
By James W. Cottrell

much of the time saved in other ways during the job was wasted. The loss was stopped by running a $\frac{3}{4}$ -in. water pipe the entire length of the work-bench and providing an outlet for each mechanic. Quick detachable couplings are used and the hose with automatic shut-off nozzle can be attached or detached at any point in a few seconds. Another time-saving device is a shallow pan which will hold the entire contents of the cooling system. When the water is drained in a pail the mechanic usually has to stop other work to shut off the drain-cock, empty the pail and open the valve again.

Two mechanics are usually detailed to hurry-up carbon and valve jobs. After the cylinder head is removed one mechanic cleans it of carbon while the other removes the valves. If the seats are to be refaced the first mechanic also cleans carbon off the pistons as his share of the work. In reassembling the job one mechanic tightens down the cylinder head while the other adjusts the valve tappets. Effective team work between the two is essential and if they do no unconsciously divide the operations to best advantage the job should be analyzed and division agreed upon.

Carbon and valve jobs are completed in approximately 90 minutes on valve-in-head engines in many up-to-date shops. A spare cylinder head with valves already ground is kept in the stock room and this unit is exchanged with the part in the truck or bus. Removal of carbon from the pistons

(Turn to page 27,
please)



A stock of differential carrier assemblies and a spare cylinder head with valves ground reduces truck shop time

1928 Models are Faster

THE trend of truck design is toward faster and more flexible units. In inter-city hauling, the advantages of greater speed from the standpoint of reducing the fixed charges per mile operated or per ton hauled, and in increasing the economic trucking range, are obvious. In city service, the desirability of both rapid acceleration and deceleration under present congested traffic conditions, is equally evident.

There is a growing belief that the truck should be able to maintain its position in the traffic stream—in other words that it should be able to approximate passenger car pick-up and stopping ability. Such performance tends to relieve traffic congestion and to build public good-will for the motor truck. The latter factor is an intangible but it is of considerable importance, as public opinion is a determining factor in shaping legislation governing the use of the highways by trucks. Passenger car performance now is being closely approximated by many truck models in the lower capacity ranges and in the heavy duty field there has been considerable improvement in this respect. Of course, in the large capacity models, fuel economy can not be sacrificed to too great an extent to get rapid acceleration.

That these requirements of modern highway transportation are being met by the manufacturers is indicated by the design developments of the last year. There has been a noticeable tendency toward the use of more powerful engines; the six-cylinder type has become more popular; pneumatic tires are furnished more commonly as regular equipment; more transmission speeds are being provided; four-wheel brakes are being fitted more frequently.

Coincident with the improvement that has been effected in performance, there has been a general tendency to make truck appearance more attractive and to provide increased comfort for the driver. There has been a marked improvement in the design of cabs and their use is becoming increasingly common as it is realized that adequate protection for the driver in all weather results in safer and more efficient operation. In many of the modern cabs, upholstery and seat design is on a par with passenger car practice. Improved methods of supporting the cab, such as the rubber insulation used by one maker and the three-point suspensions employed by a number of others, have relieved it of strains set up by frame flexure. This has increased cab life and reduced maintenance expense.

In the chassis design, steering gears have been made more powerful to reduce the effort required of the driver and the wheel has been placed at a more comfortable angle. Improvements in clutch design has made gear-shifting easier and longer and more conveniently placed shifter levers also have helped. While direct mechanical brakes still are the

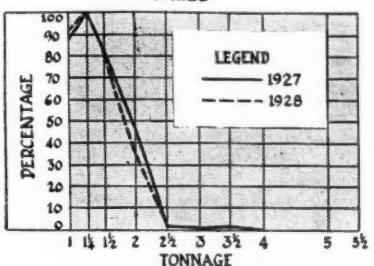
New Designs Are Better Look
the Driver—Sixes and

rule, a number of makers are fitting booster mechanisms to reduce the effort required of the driver. In this connection, it should be pointed out also that the hydraulic and self-energizing systems employed by several makers operate with relatively light pedal pressures. Some of the improvements mentioned briefly in the foregoing, of course, have added to the first cost but the improved driving conditions justify such additions.

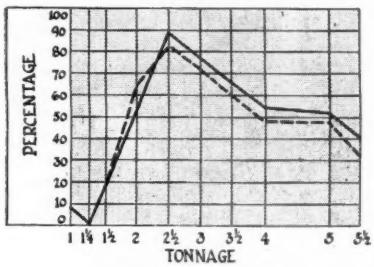
The increased power needed for faster acceleration has been obtained in some cases by the use of larger engines, frequently with six cylinders. There also has been some tendency to increase compression ratios and improved manifolding and larger valve areas have been a factor.

In all capacity classes, as shown in one of the ac-

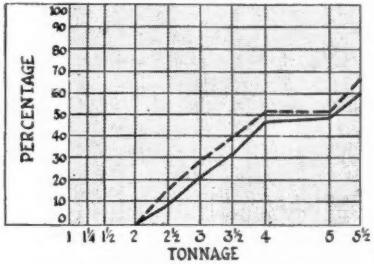
TRANSMISSION SPEEDS THREE



FOUR



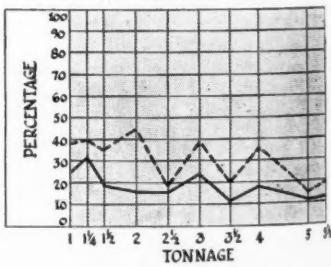
MORE THAN FOUR



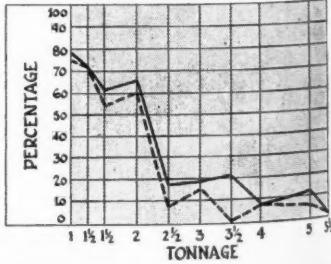
Trends of

In the accompanying charts of 1928 and 1927 truck characteristics are based on number of trucks taken of the production figures are available

SIX CYLINDER ENGINES



1/2 FLOATING REAR AXLE



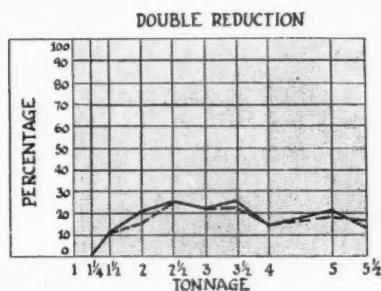
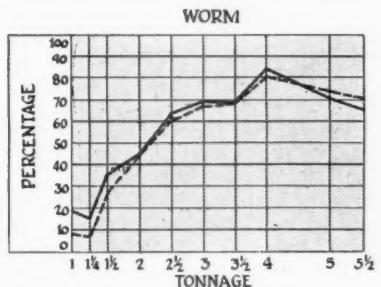
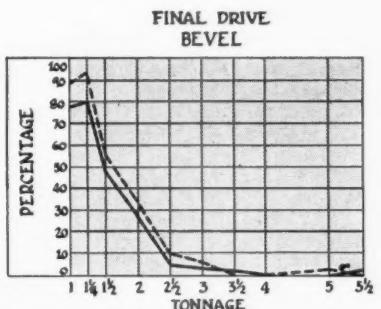
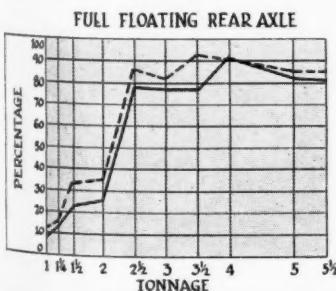
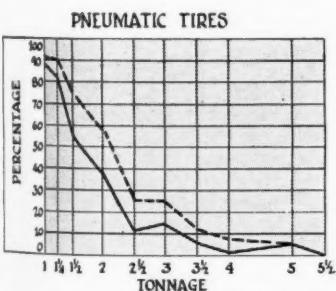
Steeper and More Flexible

ing and More Comfortable for Pneumatics Show Gains

companying charts, the use of the six-cylinder engine has become more common. The demand for greater flexibility and higher operating speeds undoubtedly is responsible for this development. In both fours and sixes, aluminum pistons are being used more generally not only because they reduce vibration but also because the resulting reduction in the weight of the reciprocating parts decreases the bearing loads, this being a factor of considerable importance in high speed engines. The use of aluminum pistons, in addition, is favorable to higher compressions as is the smaller volume of the individual cylinder in the six. Cooling systems have been enlarged and pressure lubrication is now the rule with a few notable exceptions. Air cleaners, oil filters and fuel strainers are being furnished as regular equipment.

Truck Design

arts some of the characteristics of the various models are compared. The models and no account of the various models as no for such computation.



ment with increasing frequency. The use of rubber engine mountings also has gained ground.

The most notable development in transmissions is, perhaps, the tendency to provide more speed changes. The three speed design predominates in models rated up to and including 1 1/2 tons, and the situation in these capacity classes is about the same as it was a year ago. In the two-ton class, the four-speed type has gained considerably in the last year. The four-speed unit predominates in the 2 1/2, 3 and 3 1/2-ton groups but in each of these classes it is not as extensively used as a year ago due to the gains made by transmissions of more than four speeds. In the four and five-ton capacities, the four-speed unit also has lost ground and this year is used in less than half of the models of these capacities. These losses are offset by increasing use of transmissions of more than four speeds. For models of 5 1/2 ton and greater rating, transmissions of more than four speeds are the rule.

Bevel reduction rear axles have gained ground in the 1, 1 1/4, 1 1/2 and 2-ton classes and this presumably is due to the trend toward higher operating speeds. The worm drive has held its own approximately in all capacity classifications except the 1 and 1 1/4 ton and the same is true of the double reduction type.

The full-floating axle is used more extensively in every capacity classification except the 4-ton group where an insignificant loss was registered. The semi-floating predominates in all capacities up to and including the two-ton.

Pneumatic tires have registered gains in every capacity classification. The accompanying charts is based only on regular equipment and does not take into account the large number of models on which pneumatics are optional equipment. It will be noted that pneumatic equipment predominates both this year and last in the 1, 1 1/4 and 1 1/2 ton groups and shows large gains in each of the larger groups up to the five-ton capacity.

Average chassis weights show little variation from last year although such changes as there are, are mostly increases. Although a downward trend of chassis weight is desirable, the fact that a very slight upward trend is discernible probably is accounted for by the increases in power and by the necessity for adding strength to take care of higher operating speeds. In other respects some progress has been made in reducing weight through improvements in design and by the use of better materials. A comparison of average weights follows:

Capacity	1926	1927
1	3040 lb.	3010 lb.
1 1/4	3170 lb.	3240 lb.
1 1/2	3940 lb.	3950 lb.
2	4370 lb.	4370 lb.
2 1/2	5600 lb.	5530 lb.
3	6070 lb.	6200 lb.
3 1/2	7330 lb.	7400 lb.
4	7890 lb.	7900 lb.
5	8950 lb.	9150 lb.
5 1/2 and up	9450 lb.	9640 lb.

(Turn to page 32, please)

C. C. J. Shop Ideas

THIS page is designed primarily to help service station repairmen in effecting economies in time, labor and money. Salesmen, however, can also profit by scanning over these practical hints.

Readers have secured many valuable suggestions from the series of ideas published. We want more useful hints and will pay \$5 for each new idea accepted. Give exact dimensions of parts to be made to enable other readers to duplicate the device.

Axle Alignment Attachment

Two cone-shaped parts, which can easily be made on a lathe are used in the axle alignment gage shown in the illustration. In straightening front axles the axis of the king pin is frequently used as a reference and this line is projected above the axle by means of a round steel bar. The cones are used to adapt the bar to use in axles of different sizes.

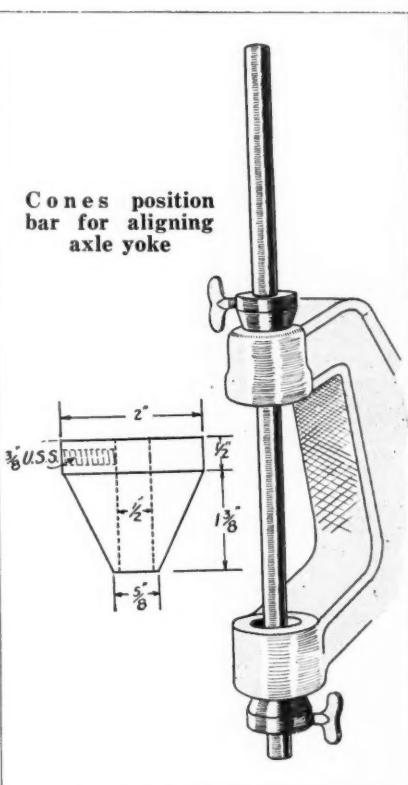
Dimensions of the cone are given in the sketch. A hole is drilled near the upper edge and threaded for a $\frac{3}{8}$ in. wing nut.

Alignment of the axle is checked by sighting the bar in one end of the axle with a similar bar in the other axle yoke and by checking each yoke separately by means of steel squares.—W. B. Lewis, Maccar Trenton Truck Sales Co., Trenton, N. J.

NOTE.—The method of checking front axle alignment by means of shafts placed through the axle yokes was described in the March 1927, issue on page 18.

Axle Shaft Nut Wrench

It is difficult to tighten or remove the rear axle shaft nut on certain models of buses, according to C. S. Battele, of the Mid-State Coach Lines, Auburn, N. Y. He states that the nut is large in diameter and the fenders and body are in the way. A large



socket wrench made by a blacksmith solved the difficulty for him. The wrench is about 3 ft. long and holes are bored in the handle, as shown, to receive an iron bar about the same length which provides the necessary leverage to

draw the wheel on the axle tight.

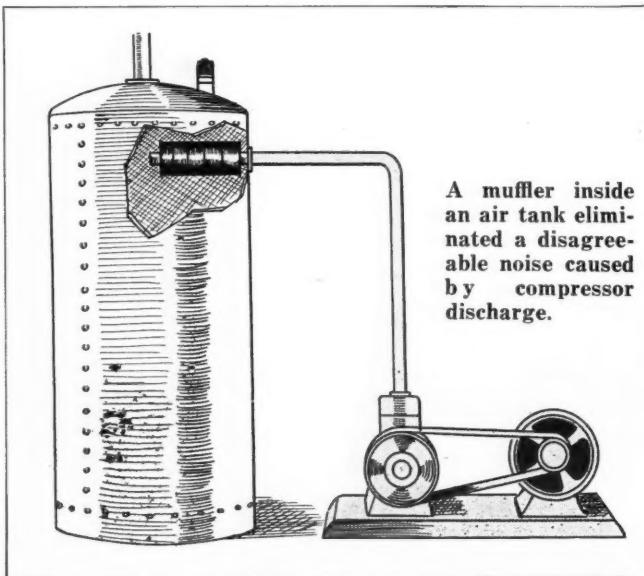
A variation of the same idea is also illustrated. This wrench was made of a section of steel tubing about 2 ft. long, with an inside diameter of $3\frac{1}{4}$ in. and a wall thickness of $\frac{1}{4}$ in. One end is formed into a hexagon to fit the nut and a hole is bored through the other end for a bar handle. The size of the hexagon for a White 50-B bus is $3\frac{1}{8}$ in. which will give an idea of the size of the opening of wrenches of this type.

The holes for the cross handle of the tubing wrench can be cut with an oxy-acetylene torch or the holes can be drilled.

Muffling an Air Tank

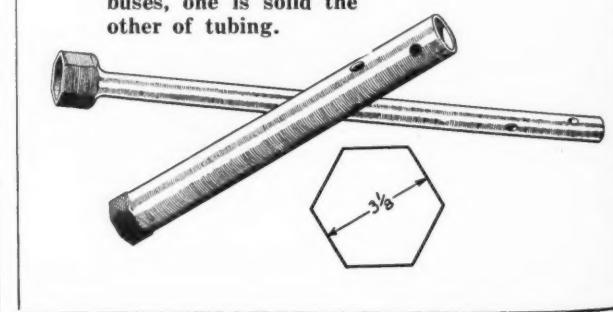
A heavy duty air compressor discharging into a large steel storage tank made such a noise that it annoyed not only the shop force but persons living in nearby houses. The tank acted as a sort of sounding board for the air discharge from the compressor. To correct the trouble several different arrangements of piping, including special long radius fittings, were tried without success. The air compressor makers found nothing abnormal about the machine and it was finally agreed that details of the installation brought about the disagreeable resonance.

Mounting a standard truck muffler on the end of the compressor discharge pipe inside the tank put an end to the noise. The idea occurred to one of the shop staff and it was tried with some misgivings because of the fact that the muffler was to operate in a space under pressure but it succeeded.



A muffler inside an air tank eliminated a disagreeable noise caused by compressor discharge.

Two forms of wrench for axle shaft nuts on buses, one is solid the other of tubing.



New Trucks of the Month

Diamond T

FIVE new six-cylinder models designed to meet every requirement in the local and long distance hauling fields have been added to the line of the Diamond T Motor Car Co. Of these, three are offered for local work:

Model T36, 1½-2 ton, solid tires, 3 x 4½ in. engine, 25 m.p.h.

Model U46, 2½-ton, solid tires, 4 x 4½ in. engine, 21 m.p.h.

Model U56, same as U46, except it has radius rods.

For long distance service the following are offered:

Model T46, 1½-2 ton, pneumatic tires, 3½ x 4½ in. engine, 35 m.p.h.

Model U66, 2½-ton, dual pneumatic tires, seven-speed transmission, 4½ x 4½ in. engine, 40 m.p.h.

Of these models T36 and T46; and U46 and U56 are essentially the same. The general design of the engines, which have displacements of 314.7, 358.1 and 428.4 cu. in., respectively, is the same with many interchangeable parts. The 3-in. crankshafts of these engines rotate in seven bearings, having a total projected bearing area of 42 sq. in.

In the order of their size these engines provide the following horsepowers: 68 at 2200 r.p.m.; 80 at 2400 r.p.m., and 93.5 at 2400 r.p.m. Ignition is by high tension magneto, Apollos being used on models T36 and T46.

The one-piece blocks of the engines have two removable cylinder heads. From the head the engines taper outward toward the base. Large water capacity is provided and extra large centrifugal water pumps are used. Water is pumped from the radiator across the block and discharged directly around the valve seats and stems. Oil filtrators are built in and work in conjunction with large size oil pumps. Each main bearing supplies oil to only one connecting rod. Piston pins are 1¼ in. diameter and constructed of molybdenum steel. Air cleaners are furnished as standard equipment.

Carburetion is by Zenith, through Swan type manifolds. With the exception of Model U66 gasoline tanks are of 33-gal. capacity and located under the seat. In model U66 tanks are located on each side of the frame behind the cab connected with a valve. Feed is by vacuum.

Radiator shells are built up of four castings spring mounted on the frame affording protection and

easy access to copper finned flat tube cores. Top tanks are of polished nickel.

Multiple disk, dry plate type clutches are used throughout with 11 disks in models T36 and T37 and 19 in the remaining models.

Transmission mountings and speeds vary according to the model. In models T36 and T46 three-speed gearsets mounted in unit with the engine are provided. Four-speed transmission located amidships and suspended from three points are employed in models U46 and U56. The transmission in model U66 is also of the amidships type, but provides seven speeds. It incorporates an overdrive of .78 to 1 as well as a low reduction of 9.5 to 1.

Two metal universal joints are employed in the unit powerplant assemblies, whereas in the amidships constructions flexible joints are used between clutch and transmission and slip-joint metal universals between transmission and rear axle.

Final drive also varies according to the model. A worm-drive, semi-floating type Timken 7½ to 1 rear is used on model T36; a Timken spiral bevel gear 4½ to 1 rear axle in model T46; a 8½ to 1 full floating worm in models U46 and U56; and a full floating 5 2/5 to 1 worm in model U66.

Semi-elliptic spring construction is characteristic of the entire line, length, width and number of leaves, of course, varying according to capacity. Leaves are of chrome vanadium steel. Shackles in front and hangers in rear of front springs are provided on all models. The only deviation in final drive is in model U56, which is equipped with radius rods. In this model both ends of the rear springs ride on specially constructed hangers. The rear springs of model U66 are of the progressive type.

Duplex internal service and emergency brakes on rear wheels are provided throughout the line. B-K Booster brake equipment is furnished as standard equipment on model U66 and as optional on models U46 and

U56. Steering gears are of the cam and lever type.

Chrome nickel steel is used for frames, which have a vertical section of 6½ in. flange 3 in. and thickness ½ in. Oilless bushings are employed on brake cross-shafts. Chassis lubrication is Alemite.

With the exception of model T36 the complete line is standardly equipped with pneumatic tires mounted on metal spoke wheels, except model T66, where Budd steel disk wheels are employed.

Each model can be obtained with a Diamond T steel cab specially designed for the model on which it is mounted at extra cost. These cabs are of the all-weather type and are mounted with three-point suspension.

Standard equipment includes generator, battery horn, bumper, speedometer or hubodometer, tools, jack, etc.

Pierce-Arrow

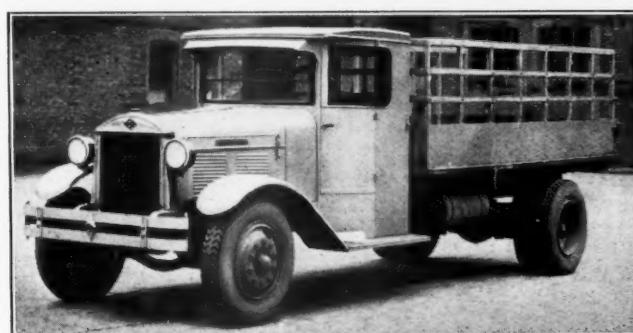
FLEET ARROW is the name of a new six-cylinder, fast delivery model recently announced by the Pierce-Arrow Motor Car Company. Rated at 1½ to 2 tons this new model is listed at \$2,450 for the standard 140-in. wheelbase chassis. The model is also furnished in two additional wheelbases at an extra cost of \$50 for the medium 160-inch wheelbase model, designated as FA-2 and \$100 extra for the long 180-in. FA-3 model.

It is powered with a six-cylinder, L-head 70 hp. engine having a bore and stroke of 3½ x 5 in. The transmission provides three speeds forward and one reverse. Final drive is through a full-floating, spiral bevel gear drive rear-axle. Internal mechanical braking is provided on all four wheels. The front axle is of I-beam construction of the reverse Elliott type.

The frame is heat-treated pressed steel 3/16 in. thick, 7½ in. section and 4 in. flange. Springs are semi-elliptic and constructed extra long to provide full cushioning over rough roads. They are 38 in. x 2 in. front and 56 in. x 2½ in. rear. Only pneumatic tires are furnished with this model, 32 x 6 in. front, and 34 x 7 in. rear, or 32 x 6 in. dual rears, at extra cost of \$150.

Distance from back of cab to the end of the frame varies according to the wheelbase as follows: FA-1, 108 in.; FA-2, 128 in., and FA-3, 148 in.

Deliveries on this new model will start in March.



New seven speed, 2½ ton Diamond T, Model U66

Graham Brothers

A NEW 2-ton road-builder chassis has been added to the truck line of Graham Brothers. A six-cylinder engine, four-speed transmission, three optional rear axle ratios, four-wheel Lockheed internal hydraulic brakes, 114-in. wheelbase and a frame of 7½ in. depth, are among the outstanding features of this new model. It is rated at a speed of 35 m.p.h.

The 3½ by 4½ in. engine is the same as that in the 2-ton standard model. Electric starter and lights are standard equipment.

The transmission which is mounted in unit with the powerplant, provides a reduction in low of 6.5 to 1.

The spiral bevel gear rear axle has a straddle mounted pinion and dual Timken roller bearings at the wheels. A cam and lever type steering gear is used.

The frame is constructed of material 7½ in. deep, ¼ in. thick, and 2½ in. flange. The rear frame cross member is of a special tubular type while the frame is dropped behind the rear axle for convenience in the use of dump bodies.

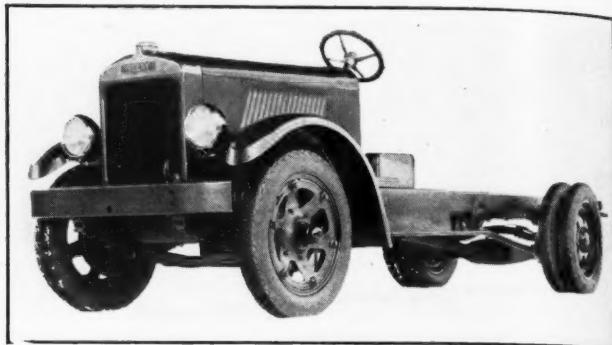
Pneumatic tires are standard equipment, 32 x 6 in the front, 34 x 7 in the rear.

This chassis with standard equipment lists at \$1,645 f.o.b. Detroit. Two standard dump bodies are offered in connection with the model, a gravity and a hydraulic type, both 1½ yd. capacity. Complete with cab and gravity body, the truck lists at \$1,945, while with a hydraulic hoist and dump body the list is \$2,170 f.o.b. Detroit. If desired, 34 x 5 or 32 x 6 pneumatic tire equipment, dual at rear, is also available, at extra cost. Steel disk wheels are applied when dual tires are used.

Relay

THE Relay Motors Corp., Lima, Ohio, has produced a new six-cylinder, Relay Drive model rated at 1½ tons, which was exhibited for the first time at the Good Roads Show in Cleveland. It is equipped with pneumatic tires throughout, with duals in the rear, which is a departure from conventional, solid tires only having been used in connection with the relay drive principle in all previous models.

New Model 30-A Relay Drive, 1½-ton chassis. It is equipped with six cylinder engine, four-speed transmission and four-wheel hydraulic brakes



This new model also embodies a high compression, six-cylinder engine with detachable head; four-wheel hydraulic brakes, four-speed transmission; battery ignition; stream-line radiator with polished upper tank and cast lower tank; I-beam front axle and improved type steering gear. Standard electrical equipment includes generator, starter and lights.

Republic

PRODUCTION of a new and more complete line of trucks is announced by the Republic Truck Sales Corp., Alma, Mich. More power and flexibility with resulting higher speed and improved acceleration to meet traffic conditions have been incorporated in the new trucks.

The new line includes 1¼-ton and 1½-ton models with six-cylinder engines; two-ton models with four-cylinder engines; a three-ton unit with four speed transmission, four-wheel brakes and six-cylinder engine and a 3½-ton truck incorporating a four-cylinder engine and herringbone gear dual reduction drive. Pneumatic tires are regularly furnished on all but the 3½-ton model and are available as an option on this unit.

Models 75-6, rated at 1¼ tons and 76-6 at 1½ tons, parallel the four-cylinder 75 and 76 series. A six-cylinder engine rated at 55 hp. is used in these units. Wheelbase of 75-6 is 128½ in. and of 76-6 this dimension is 150½ in. Tires 30 by 5 in. are used all round on the former model and on the front of model 76-6, 32 by 6 in. being mounted on the rear of model 76-6.

A frame of greater strength and larger springs and shackles are incorporated in the 75 and 76 series as well as in the six-cylinder models.

In the two-ton classification model 85 has a wheelbase of 154½ in. and model 86 a wheelbase of 170 in. Both units incorporate four-cylinder 4 by 5 in. engines with removable cylinder head and block, front springs 39 by 2½ in. and overslung rear springs 56 by 3 in., 30 by 5 in. pneumatic tires with duals on the rear wheels, bevel gear rear axles and a driveshaft brake of Republic design. Radiator guard, front bumper and tow hooks are standard equipment.

Intended for fast heavy-duty service the three-ton models 65 and 66 are powered with six-cylinder engines developing 76 hp. Four-wheel Bendix internal brakes are used. A four-speed transmission is employed and the rear axle is of the double reduction gear type with herringbone spur gears.

Front springs measure 39 by 2½ in. and the rear springs are 56 in. long and 3 in. wide. The frame is tapered over the rear axle and side members are 7 1/16 in. deep, made of 9/32 in. stock with 2½ in. flange. Tires, which are mounted on metal wheels, are 34 by 7 in. with dual equipment on rear wheels.

The frame of model S-25W, rated at 3½ tons, is 7 in. deep with a 3 in. flange. The engine has four cylinders 4 ½ by 5 ¾ in. stroke giving piston displacement of 346 cu. in. Gasoline filter and air cleaner are furnished. A thicker radiator core and a double-chambered inlet in the radiator upper tank assist in cooling.

The rear axle incorporates double gear reduction, herringbone gears being used in the final reduction. Two-stage rear springs are employed. The transmission, of the four-speed type, has ball bearings throughout and is mounted as a unit with the engine.

Cushion tires are standard equipment, 36 by 5 in., being mounted on the front wheels and 36 by 12 in. on the rear. Three wheelbases are available 164½ in. on model S-25W, 184½ on S-25WA and 153½ on model S-25WB.

Rear springs of model 50, rated at two tons, have been mounted above the rear axle to increase road clearance and similar change has been made in model 60 which now incorporates 32 by 6 in. pneumatic tires with duals on the rear.



Two ton road builder chassis recently added to Graham Brothers truck line. Six cylinder engine, four-speed transmission, four-wheel Lockheed internal hydraulic brakes and three optional wheelbases feature this truck

Service Sales May Be Increased

(Continued from page 21)

and removal and replacement of the cylinder head are the chief operations. Promises made to an owner concerning the completion of such a job can be kept with certainty, as there are few chances for unexpected trouble.

After the truck is delivered the cylinder head is taken to the machine shop or the location of the valve machine and the valves and seats refaced.

A minor saving is accomplished in some shops by issuing the cylinder head gasket with the spare head. In other shops a complete set of gaskets for a carbon and valve job is issued with the shop order for the work, thus saving the time ordinarily required while a stock clerk hunts up the several items.

Brake operations furnish another opportunity for team-work on the part of mechanics. If the brake men are working against the time set by the men doing the carbon and valve job they also must plan their work. For example: while one mechanic jacks up the right rear wheel the other removes the wheel and as the left wheel is jacked off the floor the corresponding wheel is also removed. Thereafter each mechanic works on one side and with sets of relined shoes or bands at hand there is little delay. The use of dummy drums with sections cut out to permit inspection of the setting of bands or shoes saves much time and on internal brakes makes for greater accuracy.

If the owner has set a very short time interval for the completion of the work three mechanics may be assigned to a brake job on a four-wheel brake vehicle. The third man helps the other two and does a part of the work himself and so hastens the job.

If the vehicle is to be delivered to the owner promptly it is necessary that all of the adjustments of the entire braking system be made carefully in the shop. A lot of time can be wasted running the truck around the street and sliding the wheels to determine the relative retarding power of each wheel. An owner does not distinguish the elements which make up the job for which he is paying and he is apt to be dissatisfied with the statement that the truck is "all ready but adjusting the brakes."

When an owner states that he wishes several jobs done on the vehicle and that he can spare it for a few hours at a time over a period of say a week or two, the service manager must determine how the job can be split up into operations which can be completed in the time specified. For illustration, if the repair order calls for carbon and valves, brakes, adjust connecting rod and main bearings and install new rings, the carbon and valve and brake work will be done at one time and the bearing and ring work at the next opportunity.

Change in rear axle ratio is a job which most owners wish done in a hurry. In case of a breakdown they

are reconciled to some delay but not so when a higher or lower ratio is found best suited to their purpose. These change-overs can be finished promptly if a spare differential carrier assembly is kept in stock. If several optional ratios are available one of each will be required fully to meet the needs of owners.

Not the least of the hurry-up customers of the shop is the sales department. Alteration of rear axle ratio, change in wheel and tire equipment and installation of special equipment are but a few of the sales department requests. When the purchaser is in a hurry for delivery and delivery depends upon the completion of such work there is apt to be some pressure exerted by the sales department to see that the vehicle is ready for delivery forthwith. A number of service managers who stand high in the estimation of their superiors because of their ability to meet these demands, have devoted much time and study to the question of anticipating these demands. The same policy is followed with success in handling the requests of owners.

Continental Overhead Six in Five Sizes

A series of five overhead valve engines designed for truck and bus service is being offered by Continental Motors Corp. The first of the series

which was described in our November issue has cylinder dimensions $4\frac{1}{8}$ by $4\frac{1}{4}$ in. and is designated as model 20-R. Model numbers and cylinder dimensions of the other four are: 18-R, 4 by $4\frac{1}{2}$ in.; 16-R, 4 by $4\frac{1}{8}$ in.; 14-R, $3\frac{1}{8}$ by $4\frac{1}{2}$ in.; and 12-R with bore of $3\frac{1}{2}$ in. and stroke of $4\frac{1}{8}$ in.

The three larger engines are interchangeable as to mounting and 14-R and 12-R likewise may be interchanged.

Similar construction is used in the five models, all incorporating seven bearing crankshafts, oil filtrators, built-in governor which is optional, pressure feed lubrication to all parts including rocker shaft, exhaust jacketed intake manifold with manual control, interchangeable main bearings.

Valves are operated by push rods and rocker arms and the tappet assemblies may be removed from the side through an opening in the casting normally covered by a detachable plate.

Provision is made for battery-distributor and magneto ignition. The distributor is driven by an inclined vertical shaft on the left side while the magneto is mounted at the end of the pump shaft. If a magneto is not employed a generator may be mounted in its place unless a large diameter generator is required, in which case this unit is mounted on the right side of the engine and driven directly by the front end drive. Generators up to 6 in. diameter may be placed in the latter position.

COMMERCIAL CAR JOURNAL Flat Rate Price List —Front Axle

Additional operations for the trucks listed in the December Flat Rate Price List are given below.

Armleder

1. Remove and reinstall axle center, two-wheel brake type.....	\$ 6.00
3. Straighten axle after axle has been removed	3.00
4. Remove and reinstall or renew both right and left knuckle assemblies, two-wheel brake type...	3.00
6. Renew king pin and knuckle and axle bushings on one side after knuckle has been removed.....	3.00
8. Renew all front system bushings, pins and thrust washers, two-wheel brake type. (Do not include wheels and drag link)....	6.00
9. Renew tie-rod yoke ends or ball joints, include tramping front wheels	3.75

F.W. D.

1. Remove and reinstall axle center, two-wheel brake front-drive type.....	\$ 52.50
4. Remove and reinstall or renew both right and left knuckle assemblies, two-wheel brake front drive type	37.50
6. Renew king pin and knuckle and axle bushings on one side after knuckle has been removed.....	5.25
8. Renew all front system bushings, pins and thrust washers, two-wheel brake front-drive type. (Do not include wheels and drag link)....	12.00
9. Renew tie-rod yoke ends or ball joints, include tramping front wheels	4.50

Garford 30-20

1. Remove and reinstall axle center, two-wheel brake type.....	\$ 3.00
3. Straighten axle after axle has been removed	1.50
4. Remove and reinstall or renew both right and left knuckle assemblies, two-wheel brake type..	1.50

Garford 100-80-50

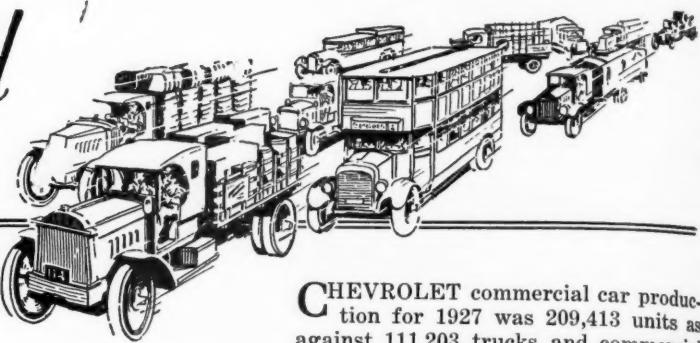
1. Remove and reinstall axle center, two-wheel brake type.....	\$ 4.50
3. Straighten axle after axle has been removed	3.00
4. Remove and reinstall or renew both right and left knuckle assemblies, two-wheel brake type..	3.00
6. Renew king pin and knuckle and axle bushings on one side after knuckle has been removed....	1.50

8. Renew all front system bushings, pins and thrust washers, two-wheel brake type. (Do not include wheels and drag link)....	6.00
9. Renew tie-rod yoke ends or ball joints, include tramping front wheels	2.25

Mack AB

1. Remove and reinstall axle center, two-wheel brake type.....	\$ 9.30
4. Remove and reinstall or renew both right and left knuckle assemblies, two-wheel brake type..	11.85
8. Renew all front system bushings, pins and thrust washers, two-wheel brake type. (Do not include wheels and drag link)....	10.50
9. Renew tie-rod yoke ends or ball joints, include tramping front wheels	5.10

Have You Heard That ~



MORE than 25,000 visitors, including a number of delegates from foreign countries, saw the \$3,000,000 exhibit of the recent Road Show. The convention placed particular emphasis on the point that millions of miles of American roads still are unfit for other than horse-drawn traffic.

R. Keith Compton, Director of Public Works, Richmond, Va., was chosen president of the American Road Builders Association, at the Good Roads Show and Convention in Chicago. James H. MacDonald was reelected treasurer and the following were elected as vice-presidents: W. A. Van Duzer, Pennsylvania highway engineer; D. B. Dimmick, president American Casting Co., Birmingham, Ala.; and S. F. Beatty, president Austin Western Road Machinery, Chicago. Samuel Hill was elected honorary life president.

A statistical study on bus operating costs has been released recently by the motor bus division of the American Automobile Association. This is the first effort in statistical research by the Division, and will form the basis for the continuance of investigation. The study is based on returns from 30 operators and gives total operating costs, maintenance costs, transportation costs, as well as various unit costs on a per mile basis.

RAILROAD representatives in United States and Canada will meet in Chicago January 25 and 26 to make the temporary Motor Transport Division of the American Railway Association a permanent organization, according to Arthur P. Russel, temporary chairman. The Division plans to study the problems of motor freight and passenger transportation and to devise the most effective means possible for the development of motor transportation.

1927 Bus and Truck Facts

Buses in use	90,000
Motor buses produced	11,500
Consolidated schools using motors	14,400
Street railways using motor buses	370
Buses used by street railroads	8,600
Buses used by steam railroads	1,175
Steam railroads using buses	60
Railroads using gasoline rail motor coaches on short lines	199
Railroads using motor trucks as part of shipping service	58

NEGOTIATIONS leading to a merger of several leading truck producers, in which Brockway, Indiana and several others are reported concerned, are continuing and there is a possibility of an announcement within a short time, according to a statement of a leading executive of one company.

Lawrence S. Koenig has been appointed manager in charge of the new Los Angeles truck branch of the International Harvester Company. Mr. Koenig has been with the Los Angeles office for a number of years and is well known in southern California, Arizona and the West Coast of Mexico.

TRUCK registration in 1927 totaled 2,985,000 and truck production amounted to 464,000 units, according to preliminary estimates of the National Automobile Chamber of Commerce.



Linn tractor clearing a Chicago boulevard after a recent snow storm. The tractor moves at a speed of 3 to 6 m.p.h. in snow averaging a depth of 3 feet and can cope with drifts 6 to 8 ft. high

CHEVROLET commercial car production for 1927 was 209,413 units as against 111,203 trucks and commercial chassis in 1926; 48,299 units, in 1925; and 96,788 units for the nine-year period between 1925 to 1915, when trucks of this type first went into production. Approximately 130,000 units of the 1927 output were sold at retail in the United States, according to a factory statement.

Federal Motor Truck Co. reports that November was the biggest export month in its history both in number of units and in sales volume. Export sales now constitute more than 20 per cent of Federal's total volume.

USE of coarse cotton fabric to hold highway surface materials in place has been reported as a new material for improving country roads by the Cotton-Textile Institute, Inc.

A. J. Brosseau has been appointed chairman of the National Motor Truck Committee of the National Automobile Chamber of Commerce. He succeeds Windsor T. White in this capacity, who held the position since the chamber was organized over 15 years ago. Mr. Brosseau also succeeds Mr. White as vice-president in charge of the commercial car division of the N.A.C.C.

INTENSIVE selling and pressure to lower production costs characterized business for 1927, and 1928 will develop along the lines of the year just closed, according to the consensus of one hundred editors of trade, industrial and professional journals in answer to a questionnaire sent to them by the National Conference of Business Paper Editors. Business is sound. There are no indications of a slump, but rather definite indications of increase in several lines. No excess inventories are reported either in wholesale or retail, except in a few specialties where the market has been over-estimated. Farm buying power will be larger in 1928.

A. S. More, vice-president of the Indiana Truck Corp., in charge of branches, has resigned. R. S. Townsend, assistant to the president, has taken over the supervision of branches, directing their sales activities.

THE fifth World's Motor Transportation Congress will be held in Rome, beginning about Sept. 5, according to advices by the Automotive Division of the United States Department of Commerce. The last congress was held in Milan in Sept., 1926, being attended by representatives from 60 countries.

THE Van Dorn Electric Tool Co., Cleveland, Ohio, manufacturers of portable electric tools, has been acquired by the Black & Decker Mfg. Co., Towson, Md., according to S. Duncan Black, president. Mr. Black announces that there will be no changes in personnel or general activities of the two organizations.

John J. Raskob, chairman of the finance committee of General Motors Corp., has accepted an invitation to become a director of the American International Corp.

THE rubber industry estimates that 10,000 more tires will be sold during 1928, bringing the expected market to 70,000,000.



Two-ton Selden Pacemaker equipped with a special body for hauling radio units. The body is formed of leather cloth tensioned over steel mesh supported by a reinforced frame.

THE exhibition and forty-seventh annual convention of the American Electric Railway Association will be held in the Cleveland Auditorium September 22-28, 1928. This will make the third consecutive year that Cleveland has been selected as the A.E.R.A. convention city.

R. S. Wilson has been made sales manager of the Goodyear Tire & Rubber Co., succeeding L. C. Rockhill, resigned. Other changes in the Goodyear personnel include: G. A. Waddle advanced to assistant sales manager; C. T. Hutchins becomes advertising manager; J. E. Mayl now heads the truck and bus tire department, and C. E. Cannon is sales personnel manager.

A WIDE range variation in the price of gasoline ranging from 10 cents to 27 cents a gallon is revealed by figures recently compiled by the American Automobile Association. The analysis, based on the figures obtained from the 950 affiliated clubs of the association, showed that 47 different prices were in effect on Nov. 22 throughout the country.

H. C. Keenan has been elected vice-president in charge of distribution of the Sterling Motor Truck Co., Milwaukee, Wis. Mr. Keenan was formerly vice-president and general manager of Master Truck, Inc. For the last four years he has been general sales manager of the Sterling Company.

THE expenditure of \$125,000,000 a year for Federal-aid highways and rural post roads is provided in a new Senate bill introduced by Senator L. D. Tyson, of Tennessee. The measure would amend the existing law so as to provide an additional \$50,000,000 a year over the present \$75,000,000 to be appropriated to the states on the same basis and would be effective for the fiscal years ending June 30, 1929 and 1930.

B. H. Scott was appointed sales manager of the Van Metal Wheel Division, Erie Malleable Iron Company, Erie, Pa., early in January.

THE Mason Motor Truck Company plant of Durant interests has been purchased by the Standard Auto Batt Company of Flint, manufacturers of material for stuffing automobile upholstery, according to O. M. Banfield and E. H. Warren, owners of the company.

Waukesha Motor Co., Waukesha, Wis., is erecting an addition to its factory estimated to cost about \$75,000 with equipment. The building will be 60 x 418 ft. and two stories high.

THAT 1928 will be another good year for the automotive industry is indicated in a statement from W. S. Isherwood, general sales manager of the AC Spark Plug Company, who says the first three months spark plug orders from distributors in the replacement field are 25 per cent above the same period a year ago.

ON January 9, the Lehigh Valley Railroad began carrying less than carload lot of shipments in steel shipping containers loaded on container cars for delivery by truck at destinations between the following points: From Buffalo to Newark, N. J., New York, Rochester and Wilkes-Barre. Newark, N. J., to Boston, Buffalo, Cleveland, Rochester, N. Y., Springfield, Mass., Syracuse, N. Y., and Wilkes-Barre. New York to Buffalo, Cleveland, Rochester and Wilkes-Barre. Rochester, N. Y., to Buffalo, Newark, N. J., New York and Wilkes-Barre. Wilkes-Barre, to Boston, Buffalo, Cleveland, Newark, N. J., New York, Rochester, N. Y., Springfield, Mass., and Syracuse.

H. H. Timken, president, Timken Roller Bearing Co.; R. W. Gallagher, president, East Ohio Gas Co.; E. A. Langenbach; G. M. Mather, president, Mather Spring Co., and Charles Bough, vice-president and general manager, Hercules Motors Co., were reelected to directorate of the Hercules Motors Corp., at the annual stockholders meeting.

THE actual disbursement of Federal aid funds during the fiscal year ending June 30, 1927, was \$81,371,013, a reduction of about \$6,000,000 below the preceding year. The year's construction brings the total length of roads improved with Federal aid assistance up to 64,210 miles. With two exceptions all states made large expenditures for highways other than those constructed under Federal aid, the ratio being about two miles constructed by the states to each mile built with Federal cooperation.

Day-Elder Motor Truck Co. has established a new factory branch in Philadelphia with R. Clinton Kauffman, vice-president of the company, as manager. The headquarters are located at 2518 N. Broad St.

HENRY FORD and his distributors spent close to \$2,000,000 in the announcement of the new model A, according to Thomas H. Moore, associate director of the bureau of advertising of the American Newspaper Publishing Association.

1928 Truck Registrations

Truck registrations by states as of January 1, 1928, according to the annual census compiled by Automotive Industries, are as follows:

States	Trucks	States	Trucks	States	Trucks
Ala.	31,906	Me.	28,215	Okl.	56,450
Ariz.	10,409	Md.	11,693	Ore.	21,893
Ark.	32,044	Mass.	83,252	Pa.	223,091
Cal.	213,959	Mich.	156,429	R. I.	19,617
Colo.	22,288	Minn.	81,665	S. C.	20,370
Conn.	44,000	Miss.	22,000	S. D.	16,533
Del.	8,670	Mo.	75,000	Tenn.	25,456
D. C.	14,991	Mont.	18,004	Texas.	117,698
Fla.	54,260	Neb.	31,270	Utah.	11,245
Ga.	38,106	Nev.	5,362	Vt.	6,320
Idaho.	10,500	N. H.	12,000	Va.	48,941
Ill.	184,564	N. J.	136,264	Wash.	58,532
Ind.	117,039	N. M.	4,000	W. Va.	31,716
Iowa.	64,197	N. Y.	321,815	Wis.	88,994
Kan.	54,628	N. C.	40,276	Wyo.	6,420
Ky.	29,729	N. D.	15,869	Totals.	2,968,680
La.	39,000	Ohio.	202,000		

THE Motor Vehicle Conference Committee has issued its annual survey of legislation affecting the motor vehicle in the form of three pamphlets with the following titles: "Special Taxation for Motor Vehicles," "State Restrictions on Motor Vehicle Sizes, Weights and Speeds," and "State Regulation of Motor Vehicle Common Carrier Business." The committee also has defined its attitude on compulsory automobile liability insurance in a leaflet in which it "urges that other states withhold legislative action on this subject until time and experience have proved the success or failure of existing plans."

C. A. Spear, manager of the New York State Division of the Selden Truck Corp., and W. L. Poffinberger, manager of the Ohio division, won \$250 and \$50, respectively in a six week sales contest among Selden division managers, which ended December 15.

LOW cost of improved roads, snow removal, trends in highway design and construction, maintenance and many other highway problems will be discussed at the Fourteenth annual conference on Highway Engineering to be held Feb. 14-17, at the University of Michigan, in cooperation with the State Highway Department and the Michigan Association of Road Commissioners and Engineers.

SLIGHTLY more than \$100,000,000 has been collected in gasoline taxes during the first six months of 1927, according to the Bureau of Public Roads. During this period all but four states levied gasoline taxes ranging from one cent to five cents a gallon. New Jersey and Illinois went out of the taxless column last July and August respectively with a two cent tax.

SHOWS

Akron, Ohio, M. O'Neil Bldg	....Feb. 4-11
American Electric Railway Association, Public Auditorium, Cleveland	Sept. 22-28
Atlantic City, N. J., Young's Million Dollar Pier	....Jan. 21-28
Automotive Equipment Association, Coliseum, Chicago	....Oct. 22-27
*Boston, Mechanics Bldg.	....March 10-17
Brooklyn, Brooklyn Motor Vehicle Dealers Ass'n, 23rd Regiment Armory	....Jan. 21-28
Camden, N. J., Convention Hall	....Jan. 30-Feb. 4
*Chattanooga, Tenn., Municipal Auditorium	....Feb. 13-18
*Chicago, National Automobile Chamber of Commerce, Coliseum	....Jan. 28-Feb. 4
*Cleveland, Public Auditorium	....Jan. 21-28
*Columbus, Auditorium	....Feb. 6-11
Deadwood, S. Dak., Auditorium	....Feb. 20-25
Denver, Auditorium	....Feb. 27-March 3
*Detroit, Convention Hall	....Jan. 21-28
*Harrisburg, Pa., Emerson Brantingham Bldg.	....Jan. 28-Feb. 4
Indianapolis, Auto Show Bldg.	....Feb. 13-18
*Kansas City, Mo., American Royal Bldg.	....Feb. 11-18
Kinston, N. C.	....April 9-13
Lansing, Mich.	....Feb. 6-11
Los Angeles	....March 3-11
Minneapolis, Municipal Auditorium	....Feb. 4-11
Omaha, Neb., Municipal Auditorium	....Feb. 20-25

Who Pays for the Highways?

Federal Excise Tax	
First ten months	....\$50,462,812
Last two months	....10,093,000*
	....\$60,555,812
State Registration Fees	
Gasoline Taxes	....\$305,000,000
	....220,000,000*
Municipal Personal Property Tax	
	....\$15,000,000*
	....125,000,000*
Grand Total	
	....\$725,555,812

* Estimated by National Automobile Chamber of Commerce.

R. M. Welch has joined the staff of G. W. Brogan, Inc., Towson, Md., advertising counsel, as automotive service and tool expert. Mr. Welch has had extensive experience in supply jobbing work, was for nine years service-manager of a Baltimore dealer and for the last 14 years fleet supervisor of the 500-unit fleet of the Consolidated Gas, Electric Light and Power Company of Baltimore.

FEDERAL control of both buses and trucks operated as common carriers in interstate transportation is recommended by Lee J. Flynn, attorney examiner for the Interstate Commerce Commission, in a report to the commission based upon his investigation of bus and truck operation throughout the country. The report will be argued before the commission Feb. 10.

Joseph Grace has been appointed manager of sales in the metropolitan area of New York, of the World Bestos Corp., Paterson, N. J. Mr. Grace has been connected with the automotive industry for a number of years, during which time he has been associated with many leading parts manufacturers.

Coming Events

Ottawa, Can., New Coliseum	....Feb. 6-11
Pittsburgh, Pa., Motor Square Garden	....Jan. 21-28
*Portland, Maine, Exposition Bldg.	....Jan. 30-Feb. 4
Providence, R. I., Cranston Street Armory	....Feb. 11-18
Quebec, Can., Drill Hall	....Feb. 25-March 3
*St. Louis, City Market Bldg.	....Feb. 6-11
San Antonio, Texas, Goad Motor Co. Bldg.	....Feb. 12-18
San Bernardino, Cal., National Orange Show Bldg.	....Feb. 16-26
San Diego, Calif.	....March 10-15
*San Francisco, Civic Auditorium	....Jan. 28-Feb. 4
Sheboygan, Wis., Eagles Auditorium	....Feb. 6-12
Syracuse, State Armory	....Feb. 6-11
*Toledo, Ohio, Civic Center Garage	....Feb. 6-11
Trenton, N. J., State Armory	....Feb. 18-25
Troy, N. Y., State Armory	....Jan. 21-28
United States Good Roads Show	....Des Moines, Iowa
Wichita, Kan., Municipal Forum	....Feb. 6-11
Wichita, Kan., Southwest Road Show	....Feb. 21-24

*Will have Special Shop Equipment Exhibit.

A NEW bill providing for the regulation of interstate bus operation between fixed terminals and over regular routes, is now being studied by the legislative committee of the Bus Division of the American Automobile Association. This new legislative proposal differs materially from the Denison Bill, which the Bus Division has had introduced into Congress. It provides for administration of the act by the Interstate Commerce Commission and by joint boards made up of representatives nominated by the state commissions and appointed by the I.C.C. Its provisions apply only to carriers operating between fixed terminals or over regular routes.

During 1927 the truck division of Dodge Brothers produced and sold approximately 60,000 trucks and commercial cars. With the addition of the 2-ton six-cylinder truck and the $\frac{1}{2}$ -ton panel delivery car the company expects to see a big increase in business this year.

PLANS for general electric truck publicity work and local cooperative campaigns during the year of 1928 in Pittsburgh, Boston, Detroit, Philadelphia and Chicago were recently approved by the Electrical Industrial Truck Manufacturers meeting at the New York headquarters of the Society of Electrical Development.

C. M. Higbie of Detroit, has been elected a director of the Reo Motor Car Co., increasing the directorate to eight members. All officers and other directors were reelected.

THE Eighth Annual Electric Show will be held March 5 to -0 in the showroom of the New York Edison Company, New York City. The exhibition will consist of electric trucks, batteries and accessories. A moving picture depicting trucking by electricity will be a feature of the show.

CONVENTIONS

American Electric Railway Association, Public Auditorium, Cleveland	Sept. 22-28
Automotive Equipment Association, Grand Hotel, Mackinac Island	June 10-16
Automotive Equipment Association, Coliseum, Chicago	....Oct. 22-27
National Automotive Parts Association, Hotel Statler, Detroit	....Jan. 25-27
National Battery Mfrs. Ass'n, Chicago	....Feb. 15-16
Society of Automotive Engineers, Annual Meeting, Book-Cadillac, Detroit	....Jan. 24-27
United States Good Roads Association and Bankhead National Highway Association, Des Moines	....May 28-June 1

N. A. D. A.

Chicago, Jan. 31-Feb. 2—Annual, Palmer House
Chicago, Feb. 1—Banquet, Palmer House

COMING FEATURE OF CHILTON CLASS JOURNAL PUBLICATIONS

Feb. 18—Statistical Issue—Automotive Industries.

What is GOOD STEERING?



THE qualities of a steering gear which must be collectively considered to produce *good* steering may be summed up under three general headings:

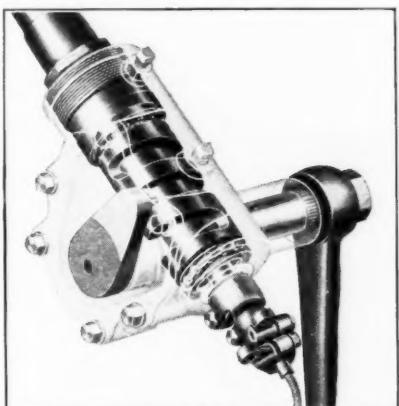
1. Ease of Wheel Turn
2. Lack of Road Shock
3. Road Sympathy

Each of these qualities *must* be present in *good* steering. Undue emphasis on any one of them *destroys* the best result. A properly balanced proportion of these qualities is better achieved in Ross Gears than in any other—a nicety of balance which can be obtained only by the unique cam-and-lever principle exclusive to Ross.

Fifty makers of buses have recognized the advantages of greater ease, safety and control that this balanced steering gives—and are using Ross Cam and Lever Steering Gears as standard equipment. Write for the complete facts on Ross.

ROSS GEAR & TOOL CO. • LAFAYETTE, IND.

ROSS *Cam*
AND
Lever **STEERING**



The balanced qualities of Ross Steering are largely the result of these features in which the Ross Cam and Lever Steering Gear differs from the conventional type of steering gear:

Variable Ratio of Cam

Line Contact Between Actuated and
Actuating Members

Low Internal Pressures

Powerful Internal Leverage

Major 1927 Features

(Continued from page 20)

it is only a small portion of the truck operating industry. Statistics prepared by the National Automobile Chamber of Commerce and based on traffic surveys made in many states by the United States Bureau of Public Roads indicate that 82 per cent of all trucks are owned by shippers, and used as adjuncts of the main business of the shipper; 11 per cent are owned for use under private contracts with shippers; and seven per cent are owned by professional haulers. This last group of seven per cent is divided up between a small number who operate regularly between fixed points, at fixed rates and on fixed schedules as common carriers, and a larger number who are in the general trucking business, most of them as successors of the city teamsters and draymen of several decades ago.

There have been no unusual developments during the year in respect to regulation of the business of truck hauling. No important new state laws have been passed, and the same difficulties are being found in trying to enforce previously enacted laws. Whenever an attempt is made to protect truck operators as common carriers and guarantee them rates sufficiently high to attract operators to common carrier business, traffic is diverted to other operators under private contracts, or shippers purchase new equipment in order to save trucking costs.

The investigation into the relation of truck and bus operation to the business of the railroads begun in 1926 by the Interstate Commerce Commission has not yet been concluded. The commission has set February 10, 1928, as a date for oral argument on the preliminary findings of its examiner, however. Little sentiment from the public, and much less than expected from the railroads, has developed during this investigation in favor of regulation of the truck business.

1928 Models Are Faster and More Flexible

(Continued from page 23)

The six-wheeler has received much attention both here and abroad during the last year. This has been due in part to limitations placed on the four-wheel truck by state laws. However, the general tendency toward higher operating speeds probably has been an important factor as the six-wheel type has some real advantages in this respect. A number of manufacturers are developing models with six wheels and 1928 may see considerable progress along this line.

From the maintenance standpoint, perhaps the most important development has been the continued progress that has been made in increasing the mileage possible between overhauls and

parts replacement. Designing engineers are giving more attention to making maintenance less costly by providing more accessible constructions but their efforts in this direction are limited in some respects by manufacturing requirements. The use of oil filters and air cleaners, and improvements in chassis lubrication as well as other elements of design, of course, have tended to make maintenance less costly.

1928 Will be a Good Truck Year

(Continued from page 18)

in 1927. If the business is equal to 1927, we think that is about all that can be hoped for. In our opinion, it will be at least three years yet before there is a proper balance between the number of trucks now in the hands of the operator and the work for them. The entire Pacific Coast has been oversold and thousands of trucks have been sold on long terms and small downpayments."

Otto Armleder, president of the Armleder Motor Truck Co., voices optimism as in his opinion "1928 will be a better year for the truck business than we have enjoyed during this year. This is based on the fact that general business conditions throughout the country will improve materially next year over what it has been this year, due to the prosperity of the farmer."

According to reports received from dealers giving their opinions as to the outlook for sales in their particular territories, prospects are good in all parts of the country. In every one of the nine geographical zones into which the country is divided, the "good" reports predominate and only five out of a total of 149 rate prospects as "poor."

The dealer reports also indicate in every zone that used truck inventories are smaller than a year ago, which is a decidedly healthy condition. Of 146 answers to this question, 84 report used truck inventories smaller than a year ago, 33 have about the same inventory, while there has been an increase in 29 instances.

The group of dealers and branches reporting in this survey apparently en-

joyed a larger volume of business last year than did the trade generally, as 90 out of 148 report larger sales than in 1926.

This may be explained partly by the fact that only a few Ford dealers are included. The improvement in net profits shown, with 80 out of 140 reporting larger profits than in the preceding year, is partly due to the better-than-average sales of the group reporting but also to the improvement in used truck handling and very likely to reduced losses on instalment sales.

All in all, the outlook for 1928 is for a volume that is substantially larger than in 1927 and for satisfactory profits to those who carry on along sound lines. With nearly three million motor trucks registered, large replacement sales are assured and, as the mileage of improved highways increases and the transportation requirements of the country are analyzed more fully, entirely new sales possibilities are being opened up.

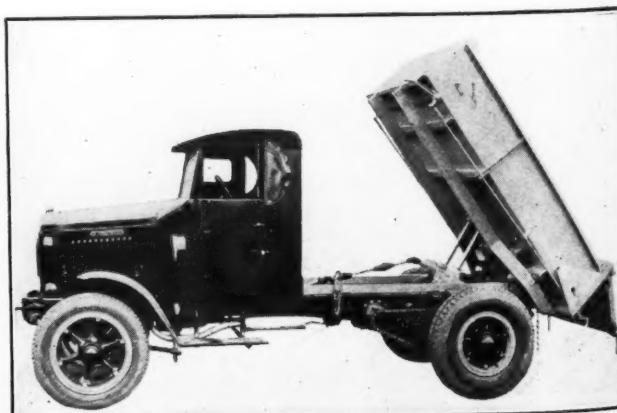
Willys-Overland

(Continued from page 15)

is a $3\frac{3}{4} \times 4\frac{3}{4}$ in. unit and a three-speed transmission is employed. Rear axle is a spiral bevel design with a reduction ratio of $6\frac{1}{2}$ to 1. Tires are 32×6 in. front and 34×7 in. rear. A double reduction axle with a 6.33 to 1 reduction is used on the $2\frac{1}{2}$ ton model which has 32×6 in. tires with duals on the rear and a four-speed transmission. The engine is of the same size as that employed in the 2-ton chassis. Wheelbases of 150 and 164 in. are available and the respective chassis weights are 4920 and 5030 lbs.

All models have semi-elliptic springs all around but the three larger ones have the progressive type at the rear. Governors are fitted on all models except the one tonner, the governed speed of the $1\frac{1}{2}$ ton model being 45 m.p.h. and 40 m.p.h. for the 2 and $2\frac{1}{2}$ ton chassis. Regular equipment includes tools, fenders, running boards, splash guards, cowl, instrument board with usual meters including a speedometer and floor boards.

Installation of a Heil twin-cylinder hydraulic hoist on International Harvester trucks, Model 54C, providing a dumping angle of 57 deg. The body, also Heil, is 9 ft. long by 6 ft. wide



Commercial Car Specifications—Corrected Monthly

Key of abbreviations, page 46

General		Tire Size		Make and Model		Rear Axle		Gear Ratios		Front Axle		Make and Model			
		Front (Inches)	Rear (Inches)	Front (Inches)	Rear (Inches)	Type and Model	Location	Total Reduction Ratio	Low	High	Total Reduction Ratio	Low	High	Make (Model)	Wheels (Model)
Trade Name and Model	Class 5 (Tire)	Standard Wheelbase	Chassis Type	Front (Inches)	Rear (Inches)	Make and Model									
Ton—Cont'd															
Arabah A3	1350	133	P 30x5	P 30x5	Con 11U										
the Moon H-10	140	130	P 30x5	P 30x5	Con 12C										
Lehninghaus	130	120	P 30x5	P 30x5	Wau V										
Lehnenmeyer	1650	152	P 30x5	P 30x5	Wau V										
Wash 2018	1505	140	P 34x4*	P 34x4*	Own 4										
Barker Chariot	1750	140	P 33x5	P 33x5	Wau SU										
Landow GA	120	120	S 33x5	S 33x5	Her OX										
Shebheit	130	120	S 32x6	S 32x6	Wau SU										
Services 25H	144	136	P 30x5	P 30x5	But WTU										
Darwin Fleetruck	950	128	P 30x5	P 30x5	Con P										
Dewart Buddy	955	128	P 30x5	P 30x5	Wau X										
Medium 16C6	120	120	P 32x4 1/2	P 32x4 1/2	Con 20										
S. U.	1850	138	P 34x4 1/2	P 34x4 1/2	But WTU										
Jachett S.	150	125	S 34x5	S 34x5	Own 8R										
White 15 B.	1545	133	S 34x5	S 34x5	Own GKA										
Millys Knight T-100	130	120	P 30x5	P 30x5	Own 6										
Mellow Cab T-1	1450	130	S 33x5	S 33x5	Con V										
Mellow Knight T-2	1550	130	P 30x5	P 30x5	Con V										
Enhance F.	1095	124	P 32x6	P 32x6	Yell V										
1/4 Ton		136	P 30x5	P 30x5	Con S 84										
Hutherford 26B...	132	120	S 30x5	S 30x5	Lyc S										
Heiderman 20B...	154	132	S 30x5	S 30x5	Con 8R										
Wau V	153	120	P 30x5	P 30x5	Wau V										
Con 8A	160	120	P 30x5	P 30x5	Con S 84										
Bud HS6	132	120	P 30x5	P 30x5	Con 12C										
Orbitbar 21...	132	120	P 30x5	P 30x5	Own 12C										
Enhance F...	127	120	P 30x5	P 30x5	Own 12C										
Enhance	129	120	P 30x5	P 30x5	Own 12C										
Pharmann 263 N	1485	133	P 30x5	P 30x5	Con 10L										
Pharmann-Benlein 10...	129	120	S 30x5	S 30x5	Lyc 8C										
Indiana 11...	129	120	S 30x5	S 30x5	Con 8A										
Indiana 61...	133	120	P 30x5	P 30x5	Wau V										
Con 10A	160	120	P 30x5	P 30x5	Con 8A										
Con 10B	160	120	P 30x5	P 30x5	Con 8A										
Con 10C	160	120	P 30x5	P 30x5	Con 8A										
Con 10D	160	120	P 30x5	P 30x5	Con 8A										
Con 10E	160	120	P 30x5	P 30x5	Con 8A										
Con 10F	160	120	P 30x5	P 30x5	Con 8A										
Con 10G	160	120	P 30x5	P 30x5	Con 8A										
Con 10H	160	120	P 30x5	P 30x5	Con 8A										
Con 10I	160	120	P 30x5	P 30x5	Con 8A										
Con 10J	160	120	P 30x5	P 30x5	Con 8A										
Con 10K	160	120	P 30x5	P 30x5	Con 8A										
Con 10L	160	120	P 30x5	P 30x5	Con 8A										
Con 10M	160	120	P 30x5	P 30x5	Con 8A										
Con 10N	160	120	P 30x5	P 30x5	Con 8A										
Con 10O	160	120	P 30x5	P 30x5	Con 8A										
Con 10P	160	120	P 30x5	P 30x5	Con 8A										
Con 10Q	160	120	P 30x5	P 30x5	Con 8A										
Con 10R	160	120	P 30x5	P 30x5	Con 8A										
Con 10S	160	120	P 30x5	P 30x5	Con 8A										
Con 10T	160	120	P 30x5	P 30x5	Con 8A										
Con 10U	160	120	P 30x5	P 30x5	Con 8A										
Con 10V	160	120	P 30x5	P 30x5	Con 8A										
Con 10W	160	120	P 30x5	P 30x5	Con 8A										
Con 10X	160	120	P 30x5	P 30x5	Con 8A										
Con 10Y	160	120	P 30x5	P 30x5	Con 8A										
Con 10Z	160	120	P 30x5	P 30x5	Con 8A										
Con 10A	160	120	P 30x5	P 30x5	Con 8A										
Con 10B	160	120	P 30x5	P 30x5	Con 8A										
Con 10C	160	120	P 30x5	P 30x5	Con 8A										
Con 10D	160	120	P 30x5	P 30x5	Con 8A										
Con 10E	160	120	P 30x5	P 30x5	Con 8A										
Con 10F	160	120	P 30x5	P 30x5	Con 8A										
Con 10G	160	120	P 30x5	P 30x5	Con 8A										
Con 10H	160	120	P 30x5	P 30x5	Con 8A										
Con 10I	160	120	P 30x5	P 30x5	Con 8A										
Con 10J	160	120	P 30x5	P 30x5	Con 8A										
Con 10K	160	120	P 30x5	P 30x5	Con 8A										
Con 10L	160	120	P 30x5	P 30x5	Con 8A										
Con 10M	160	120	P 30x5	P 30x5	Con 8A										
Con 10N	160	120	P 30x5	P 30x5	Con 8A										
Con 10O	160	120	P 30x5	P 30x5	Con 8A										
Con 10P	160	120	P 30x5	P 30x5	Con 8A										
Con 10Q	160	120	P 30x5	P 30x5	Con 8A										
Con 10R	160	120	P 30x5	P 30x5	Con 8A										
Con 10S	160	120	P 30x5	P 30x5	Con 8A										
Con 10T	160	120	P 30x5	P 30x5	Con 8A										
Con 10U	160	120	P 30x5	P 30x5	Con 8A										
Con 10V	160	120	P 30x5	P 30x5	Con 8A										
Con 10W	160	120	P 30x5	P 30x5	Con 8A										
Con 10X	160	120	P 30x5	P 30x5	Con 8A										
Con 10Y	160	120	P 30x5	P 30x5	Con 8A										
Con 10Z	160	120	P 30x5	P 30x5	Con 8A										
Con 10A	160	120	P 30x5	P 30x5	Con 8A										
Con 10B	160	120	P 30x5	P 30x5	Con 8A										
Con 10C	160	120	P 30x5	P 30x5	Con 8A										
Con 10D	160	120	P 30x5	P 30x5	Con 8A										
Con 10E	160	120	P 30x5	P 30x5	Con 8A										
Con 10F	160	120	P 30x5	P 30x5	Con 8A										
Con 10G	160	120	P 30x5	P 30x5	Con 8A										
Con 10H	160	120	P 30x5	P 30x5	Con 8A										
Con 10I	160	120	P 30x5	P 30x5	Con 8A										
Con 10J	160	120	P 30x5	P 30x5	Con 8A										
Con 10K	160	120	P 30x5	P 30x5	Con 8A										
Con 10L	160	120	P 30x5	P 30x5	Con 8A										
Con 10M	160	120	P 30x5	P 30x5	Con 8A										
Con 10N	160	120	P 30x5	P 30x5	Con 8A										
Con 10O	160	120	P 30x5	P 30x5	Con 8A										
Con 10P	160	120	P 30x5	P 30x5	Con 8A										
Con 10Q	160	120	P 30x5	P 30x5	Con 8A										
Con 10R	160	120	P 30x5	P 30x5	Con 8A										
Con 10S	160	120	P 30x5	P 30x5	Con 8A										
Con 10T	160	120	P 30x5	P 30x5	Con 8A										
Con 10U	160	120	P 30x5	P 30x5	Con 8A										
Con 10V	160	120	P 30x5	P 30x5	Con 8A										
Con 10W	160	120	P 30x5	P 30x5	Con 8A										
Con 10X	160	120	P 30x5	P 30x5	Con 8A										
Con 10Y	160	120	P 30x5	P 30x5	Con 8A										
Con 10Z	160	120	P 30x5	P 30x5	Con 8A										
Con 10A	160	120	P 30x5	P 30x5	Con 8A										
Con 10B	160	120	P 30x5	P 30x5	Con 8A										
Con 10C	160	120	P 30x5	P 30x5	Con 8A										
Con 10D	160	120	P 30x5	P 30x5	Con 8A										
Con 10E	160	120	P 30x5	P 30x5	Con 8A										
Con 10F	160	120	P 30x5	P 30x5	Con 8A					</td					

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Trade Name and Model	General		Engine	Fuel System	Clutch	Gears	Rear Axle	Gear Rates	Front Axle Make and Model	Springs (Make)	Rims (Make)	Steeing Gear (Make)	Chassis (striped) (Make)
	Front (inches)	Rear (inches)											
2 1/2 Ton													
Acme 54.....	156	834x5	S 34x8	Con S4	U	Tim 65600	W F	8 7 3	A	Tim 15300	Det	Bin	Tim 15300
Acme 55.....	165 ^{1/2}	S 35x8	S 35x8	Con S4	4	Tim 65600	W F	8 7 3	37 2	Tim 15300	Det	Bin	5100
Acorn 45 ^{1/2}	2900 150	S 36x4	D 34x7	Own DRW	4	Tim 65600	Opt	A	Shu 350	Tut	Ros	Tim 15300	4800
Acorn 45P	3600 156	S 36x4	P 36x4	Own Opt	4	Tim 65600	Opt	A	Shu 350	Tut	Ros	Tim 15300	5500
Amer.-La France W	3450	152 ^{1/2}	152 ^{1/2}	Bud EBU-J	4	Tim 65600	Opt	1/2	40 6	B	Own 2R	Mer	6600
Armleder 50	152	152 ^{1/2}	152 ^{1/2}	36x7	4	Tim 65600	Opt	2R	7 57	40 6	Tim 15300	Smi	5300
Armleder 55	152	152 ^{1/2}	152 ^{1/2}	36x7	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5300
Armleder 56-6	158 ^o	158 ^o	158 ^o	36x7	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Autocar H	114 ^o	834x5	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Biederman	160 ^o	836x5	836x10	Bud BUS	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Broadway SV	150	832x6	836x8	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Chicago 25 ^o	168 ^o	836x4	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Chrysler 8 ^o	158 ^o	836x4	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Coleman D-40	130	182 ^{1/2}	182 ^{1/2}	38x7	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Corbitt 56	152	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Day-Elder L.	144 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Defiance E.	175 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Denby 43	155 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Diamond T-U6.....	161 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Diamond T-U6.....	161 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Fisher Heavy Duty	155 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Fisher Heavy Duty	155 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Garford 50 ^o	3750 155 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Garford 50 ^o	4150 155 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
G.M.C. K-54.....	152 ^{1/2}	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Gottfredson 51.....	146 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Gottfredson 56.....	161 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Gottfredson 56.....	161 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Gramm-Bernstein 125 ^o	2985 150	P 32x6	D 32x6	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hahn 56 ^o	144 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Harvey W.F.C.	3500 150 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hawkeye 66 ^o	3100 150 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hawkeye 50-60	3500 197 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hawkeye 50-60	3500 197 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hug 84 ^o	122 ^o	P 36x6	D 36x6	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hug 84 ^o	144 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hahn 56 ^o	144 ^o	836x4 ^{1/2}	836x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hug C4 ^o	150	P 32x6	D 32x6	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Indiana 115A.....	132	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Indiana 815A.....	136	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Int. Harvester 54C.....	140 ^o	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Int. Harvester 54C.....	140 ^o	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Kelly-Springfield KS25	153 ^o	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
King Zeller 45 ^o	156 ^o	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Kleiner Speed.....	4000 190	P 33x7	D 33x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Herd Ox	144 ^o	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Hawkeye 66 ^o	168 ^o	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Le Moon G.P.	136	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Le Moon G.P.	136	836x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Luechinghause	145 ^o	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Mack AB 2 ^{1/2} ton	3400 146 ^{1/2}	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Mack AB 2 ^{1/2} ton	3880 141 ^{1/2}	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Master 15 ^o	144 ^o	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
National 28.....	3350 175 ^o	S 36x5	S 36x5	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Nobla 16 ^o	168 ^o	P 33x7	D 33x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Oakdale Co. 9 ^o	160 ^o	P 33x7	D 33x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600
Oakdale Co. 9 ^o	160 ^o	P 33x7	D 33x7	Con K4	4	Tim 65600	Opt	2R	9 25	49 5	Tim 15300	Smi	5600

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Trade Name and Model	General		Engine		Clutch		Gearset		Rear Axle		Gear Ratios		Front Axle Make and Model		Springs (Make)		Wheels (Make)		Chassis Weight (lbs.)	
	Front (inches)	Rear (inches)	Make and Model	Number of Cylinders	Make and Model	Fuel System	Generator and Starter (Make)	Electric System	Make and Model	Make and Model	Final Drive	Type	Total Reduction in Low	Total Reduction in High	Brakes, Location	Front Axle Make and Model	Springs (Make)	Wheels (Make)	Chassis Weight (lbs.)	
3 Ton—Cont'd																				
Int. Harvester 63.....	140	S 30x5 ⁴	S 36x8 ⁴	Own 63	28.9 H	SP	Own Non	D. Own	Own 63	B	Own 63	S.S.	Own	Fir	5660					
Kenworth J	3750	160	S 30x5 ⁴	S 36x8	27.2 L	PC	Own Non	D. R. D. R.	Own 63	A	Tim 15300	Tut	Ros	Ski	6300					
King Zeilier 60.....	156 ⁰	P 34x7 ⁵	Con K4	D 34x7	23.7 L	PP	Own Chi	D. B. L. D. B. L.	Own 63	A	Tim 15302	Tut	Ros	Bud	6200					
King Zeilier 62A.....	160	P 34x7 ⁵	Con K4	D 34x7	23.7 L	PP	Own Chi	D. B. L. D. B. L.	Own 63	A	Tim 15302	Tut	Ros	Ski	6200					
Kiebler Spec.....	4100	163	S 30x5	D 38x5 ⁴	32.4 L	PP	Non R-T	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Bet	Ros	Ski	6100					
Krebs 64.....	4350	163	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non R-T	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Bet	Ros	Ski	6100					
Krebs 66.....	4350	163	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non R-T	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Bet	Ros	Ski	6100					
Lange H.....	4250	166	S 30x5 ⁴	S 36x10 ¹⁰	33.8 L	PC	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Lange E3.....	3850	149 ^{1/2}	S 30x5 ⁴	S 36x6 ⁶	33.7 L	PS	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Larrabee XH25.....	3380	173 ⁰	P 33x7	S 36x10	27.2 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Le Moon H-30.....	188 ⁰	Opt.	P 34x6	D 34x7	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Le Moon H-31.....	188 ⁰	Opt.	P 34x6	D 34x7	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Macear 64.....	177	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Macear 66.....	177	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
National 40.....	4350	169	P 30x6	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
National 41.....	4500	179	P 30x6	D 38x6 ⁶	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Noble 164.....	152	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Noble 166.....	188 ⁰	P 34x7	D 34x7	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Oneida C.....	160 ⁰	P 34x7	D 34x7	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Oshkosh HH.....	4175	146	Opt.	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Oshkosh HH.....	4275	165	S 30x6 ⁶	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Pierce-Arrow XB.....	4825	165	P 30x6	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Rehberger B.....	2185	159	P 33x6	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Reo GA.....	2185	159	P 33x6	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Republic 25.....	165 ⁰	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Republic 26W.....	165 ⁰	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Ruggers 45.....	148	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Sanford 345.....	189	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Schacht L.....	160	S 30x5	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Selden Roadmaster 47.....	165	P 32x6	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Seiden Unit 53.....	163	P 32x6	D 32x6	23.7 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Sterling DW 14-64.....	3200	165	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Stewart 10.....	3200	165	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Stoughton P.....	168	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Stoughton N.....	168	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
United 40D.....	124	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
U. S. 30.....	3375	159 ⁰	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
U. S. 31.....	3375	158 ⁰	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Valley.....	165	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Ward, La France 2B.....	3400	168 ⁰	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Witt-Wil 88.....	160	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Woods 36W4.....	160	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
3 1/2 Ton																				
Acme 74.....	173	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Acme 76.....	173	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
American La France Y.....	4950	Opt.	S 36x5	Con L4	32.4 L	PP	Per	B. B. L. B. B. L.	Ful H	A	Tim 1544B	Mat	Ros	Ski	6100					
Autocar H.....	114 ⁰	S 36x5	Con 6B	4-4-3x5 ^{1/2}	40.8 L	PP	Per	B. B. L. B. B. L.	Ful H	A	Tim 1544B	Mat	Ros	Ski	6100					
Biederman.....	180 ⁰	S 36x5	Con 6B	4-4-3x5 ^{1/2}	40.8 L	PP	Per	B. B. L. B. B. L.	Ful H	A	Tim 1544B	Mat	Ros	Ski	6100					
Clinton 35 ^{1/2}	160 ⁰	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Clydesdale 4 ^{1/2}	177 ⁰	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Diamond T K2.....	170	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Dixon.....	4500	160	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Duplex EF.....	130	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
G.M.C. K-72.....	4690	60 ⁰	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Harvey WHC.....	1250	60 ⁰	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100					
Hug 90.....	124	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Hug C90.....	150	P 34x7	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
Indiana 136.....	162 ²	S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						
		S 30x5 ⁴	D 38x5 ⁴	32.4 L	PP	Non 68	D. B. L. D. B. L.	Own 63	A	Tim 1544B	Mat	Ros	Ski	6100						

Indiana 636.....

162²S 30x5⁴D 38x5⁴

W

C

R

F

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5 Ton—(Cont'd)

Sanford, W-650	175	S 3656	40-12	Bud BTU	40-0 L	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	11-0	46-8	B	Row	Van	...
Standard K-7	148	S 3656	40-12	Bud BTU	40-0 L	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	11-0	46-8	B	Row	Van	...
Schaeft	168	S 3656	40-12	Ward R RCU	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	11-0	46-8	B	Row	Van	...
Sedent Unit 80	168	S 3656	40-12	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	11-0	46-8	B	Row	Van	...
Sedent 76	170	P 3658	40-12	Con ST	4-4-51x5	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Service 108	173	S 3656	40-12	Con YBUL	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Sterling EW 20-44	174	S 3656	40-12	Own DU	4-4-51x4	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
United 100	151	S 3656	40-14	Ward La France 6B	4-4-51x4	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Ward La France 5B6	150	S 3656	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Ward 52	150	S 3656	40-14	Ward	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
White 55	174	S 3656	40-14	Ward	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
White 55	174	S 3656	40-14	Ward	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Witt Will A	172	S 3656	40-14	Ward	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-25	97-3	A	Tim 1732	Bea	...
Eagle 107-60	180	S 3656	40-14	Con B7	4-5x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Amer. La France 281	175	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Amer. La France 281	175	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Brockway	168	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Chilton 70 EU7	158	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Chilton 120SM	174	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Diamond T ST 7-14	172	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Eagle 107-60	174	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Fageol 645	170	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Fageol 645	170	S 3656	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Fageol 645	170	S 3656	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Federal X8	168	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Garford 150W	162	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Grauman 060	160	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Grauman 060	160	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Gulider L-6-7	170	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Hahn N	162	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Hendrickson SW10	168	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Hendrickson SW10	170	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Indiana 64-7	180	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Kelly-Springfield KS70	174	S 3656	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Krebs 96	182	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Krebs 96	182	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Mac Mord 516-6	168	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Moreland TXM-10	170	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Pierce-Arrow R77%	172	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
United 100	160	S 3657	40-14	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
United 100	160	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Viator 8	164	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Ward La France 7B	164	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Ward La France 7B6	164	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
White 52	172	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Witt Will A	172	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Sauerh	168	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Standard K-7	168	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Sterling EW 77-44-6	168	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Sterling EC9-66A-7½	174	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Sterling EC9-66A-7½	174	S 3657	40-14	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
United 100	151	S 3656	40-16	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
United 100	151	S 3656	40-16	Con B7	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Viator 8	164	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Ward La France 7B6	164	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Ward La France 7B6	164	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
White 52	172	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Witt Will A	172	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Armbleder	120	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Armbleder 70	119	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Armbleder 70	119	S 3656	40-16	Opt	4-4-51x6	PP	Mon	B-L	B-L 60	A	7	Sp	Tim 6766	W F	10-0	107-0	A	Tim 1730	Det	...
Autocar HT	108</																			

Motor Bus Chassis Specifications

For Other Chassis Which Are Recommended and Adaptable for Bus Use, See Models Having Sign (§) in the "COMMERCIAL CAR SPECIFICATIONS" Key of abbrev.

Gasoline Tractor Trucks—Con'd		Trucks—Con'd											
Federal HD	1125	Con LA	4-41x51 ⁵	32 4 L	FP	Pie	Own	9.5	90 75 B	Tim	1632B	Mat	Non
Garford 60	3805 130	Bud EBU-1	4-41x51 ⁵	28 9 L	PC	K.P.	Own	8.5	90 75 A	Tim	15302	Per	Day
Garford 80	5005 132	Bud BTU	4-4x51 ⁵	40 0 L	PC	K.P.	Non	8.75	93 1 A	Tim	1632B	Per	Non
Garford 100	5445 132	Bud	4-5x51 ⁵	32 4 L	FP	K.P.	Own	9.75	97 38 A	Tim	1632B	Per	Non
G.M.C. K-10T	10 ton	G.M.C. 80	4-41x51 ⁵	32 4 L	FP	K.P.	Own	10.33	81 0 1 A	Tim	16340	Det	Day
G.M.C. K-16	15 ton	G.M.C. 89	4-41x51 ⁵	32 4 L	FP	K.P.	Own	10.41	91 4 6 A	Tim	16380	Det	Day
Gramm 035-6 ton	4160 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Gramm 045-6 ton	4440 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Gramm 045-10 ton	4755 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Gramm 060-15 ton	5020 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Gramm 060-15 ton	5160 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Gramm 060-15 ton	5370 1330	S 30x5	4-41x51 ⁵	32 4 L	FP	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Harvey W.H.T. 6 ton	3636 5	Bud EBU-1	4-41x51 ⁵	28 9 L	PC	McC	Own	7.00	86 500	Mat	88600	Mat	Non
Harvey W.H.T. 10 ton	4230 125	S 30x5	4-41x51 ⁵	32 4 L	PC	McC	Own	7.00	86 500	Mat	88600	Mat	Non
Int. Harvester 43	1115	S 30x7	4-41x51 ⁵	32 4 L	SP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Int. Harvester 63	120	S 30x5	4-41x51 ⁵	32 4 L	SP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Int. Harvester 103	134	S 40x14	4-41x51 ⁵	32 4 L	SP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Int. Harvester 54C	122	S 30x5	4-41x51 ⁵	32 4 L	SP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Int. Harvester 74C	177	S 30x6	4-41x51 ⁵	32 4 L	SP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Mack AC 5-Ton	3400 1224 ⁵	S 30x8	4-41x51 ⁵	28 9 L	PS	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Mack AC 7-Ton	4950 1228	S 34x5	4-41x51 ⁵	40 0 L	PS	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Mack AC 10-Ton	5500 129	S 34x6	4-41x51 ⁵	40 0 L	PS	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Mack AC 15-Ton	6000 129	S 34x7	4-41x51 ⁵	40 0 L	PS	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Pierce-Arrow XB	3700 140	S 30x5	4-41x51 ⁵	32 4 L	FP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Pierce-Arrow RD	5400 133	S 30x6	4-41x51 ⁵	32 4 L	FP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Pierce-Arrow RF	5600 132	S 30x7	4-41x51 ⁵	32 4 L	FP	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Sauerer 6000 Opt	840x12	S 40x6	4-41x51 ⁵	28 9 L	PS	Own	Own	7.00	86 500	Mat	88600	Mat	Non
Schacht 5 Ton	130	S 30x5	4-41x51 ⁵	32 4 L	PC	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Schacht 7 Ton	130	S 30x6	4-41x51 ⁵	32 4 L	PC	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Schacht 13 Ton	130	S 36x6	4-41x51 ⁵	32 4 L	PC	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Schacht 15 Ton	130	S 36x7	4-41x51 ⁵	32 4 L	PC	Pie	Own	7.00	86 500	Mat	88600	Mat	Non
Service 61	122	S 36x4	4-41x51 ⁵	28 9 L	PC	Non	Own	7.00	86 500	Mat	88600	Mat	Non
Service 81	131	S 36x5	4-41x51 ⁵	32 4 L	PC	Non	Own	7.00	86 500	Mat	88600	Mat	Non
Service 103	131	S 31x8	4-41x51 ⁵	32 4 L	PC	Non	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 107 ^{1/2}	130	S 36x4	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 157 ^{1/2}	130	S 36x5	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 207 ^{1/2}	130	S 36x6	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 247 ^{1/2}	130	S 36x7	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 287 ^{1/2}	130	S 36x8	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 327 ^{1/2}	130	S 36x9	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 367 ^{1/2}	130	S 36x10	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 407 ^{1/2}	130	S 36x11	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 447 ^{1/2}	130	S 36x12	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 487 ^{1/2}	130	S 36x13	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 527 ^{1/2}	130	S 36x14	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 567 ^{1/2}	130	S 36x15	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 607 ^{1/2}	130	S 36x16	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 647 ^{1/2}	130	S 36x17	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 687 ^{1/2}	130	S 36x18	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 727 ^{1/2}	130	S 36x19	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 767 ^{1/2}	130	S 36x20	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 807 ^{1/2}	130	S 36x21	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 847 ^{1/2}	130	S 36x22	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 887 ^{1/2}	130	S 36x23	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 927 ^{1/2}	130	S 36x24	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 967 ^{1/2}	130	S 36x25	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1007 ^{1/2}	130	S 36x26	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1047 ^{1/2}	130	S 36x27	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1087 ^{1/2}	130	S 36x28	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1127 ^{1/2}	130	S 36x29	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1167 ^{1/2}	130	S 36x30	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1207 ^{1/2}	130	S 36x31	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1247 ^{1/2}	130	S 36x32	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1287 ^{1/2}	130	S 36x33	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1327 ^{1/2}	130	S 36x34	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1367 ^{1/2}	130	S 36x35	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1407 ^{1/2}	130	S 36x36	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1447 ^{1/2}	130	S 36x37	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1487 ^{1/2}	130	S 36x38	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1527 ^{1/2}	130	S 36x39	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1567 ^{1/2}	130	S 36x40	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1607 ^{1/2}	130	S 36x41	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1647 ^{1/2}	130	S 36x42	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1687 ^{1/2}	130	S 36x43	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1727 ^{1/2}	130	S 36x44	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1767 ^{1/2}	130	S 36x45	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1807 ^{1/2}	130	S 36x46	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1847 ^{1/2}	130	S 36x47	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1887 ^{1/2}	130	S 36x48	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1927 ^{1/2}	130	S 36x49	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 1967 ^{1/2}	130	S 36x50	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2007 ^{1/2}	130	S 36x51	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2047 ^{1/2}	130	S 36x52	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2087 ^{1/2}	130	S 36x53	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2127 ^{1/2}	130	S 36x54	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2167 ^{1/2}	130	S 36x55	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2207 ^{1/2}	130	S 36x56	4-41x51 ⁵	32 4 L	PC	Wau	Own	7.00	86 500	Mat	88600	Mat	Non
Sterling 6W 2247 ^{1/2}	130	S 36x57	4-41x51 ⁵	32 4 L	PC	Wau							

GENERAL	ENGINE		ELECTRICAL SYSTEM		TRANSMISSION		REAR AXLE		WHEELS		Width (In.)
	Weight	Make and Model	Generator and Starter	Make	Type and Make	Number of Model	Forward Speeds	Model	Model and Location	Make and Model	
Seating Capacity											
Chassis Only											
Chassis with Body											
Body Allowance											
Number of Cylinders											
Make and Model											
Radialator Make											
Carburetor Make											
Low M. P. H.											
High M. P. H.											
Voltage and Amp.											
Make											
Generator System Make											
Generator and Starter											
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Breakway BW.....	18	4820	7975	3000/182	Wls HB	6-3/4x5	46	8.5	D. B.L.	Bud	30	28½	256	174	
Brookway JL.....	29	6820	11000	5000/221	Wls Y	6-4x5	45	8.5	D. B.L.	Bud	32	26	263	168	
Brookway JL.....	29	6525	7725	184	Wau CU	6-4x5	45	8.5	D. B.L.	Bud	32	26	243½	170½	
Clinton 65B.....	30	6800	9600	3000/220	Wau Q	6-4x5	45	8.5	D. B.L.	Bud	37	30	280	90	
Clinton 65B.....	35	6200	11500	5300/216	Bud BU5	6-4x5	45	8.5	D. B.L.	Bud	38	28	270	70	
Concord Bus.....	25	20	5300	7800	2500/188	Con 48B	6-3/4x5	46	8.5	D. B.L.	Bud	30	240½	172½	170
Day-Elder 20.....	30	7300	11300	4000/220	Bud BA6	6-4x5	45	8.5	D. B.L.	Bud	30	240½	172½	170	
Day-Elder 30.....	30	7000	10500	3500/216	Con 48A	6-3/4x5	46	8.5	D. B.L.	Bud	27	21	240	91	
Doubtless.....	21	5700	9100	3450/182	Bud DS6	6-3/4x5	45	8.5	D. B.L.	Bud	34	21	244	91	
Fagot 503 (Kent).....	29	30	230	130	Wau S	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Fagot Parlor Car.....	29	20	230	130	Wau	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Fagot Street Car.....	29	20	230	130	Wau	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Fargo Dba. Deck.....	58	233	233	233	Wau	6-4x5	45	8.5	D. B.L.	Bud	27	21	51½	92	
Fifth Ave. J.....	25	8550	2750	1740	Yell EZ	4-4x6	46	8.5	D. B.L.	Bud	27	21	51½	92	
Fifth Ave. L.....	55	6850	12040	5100/174	Yell EZ	4-4x6	46	8.5	D. B.L.	Bud	26	21	296	94	
Garford KB.....	21	4400	11500	3000/180	Wls Y	6-3/4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Garford KB.....	21	6000	11300	3450/236	Wls Z	6-3/4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Graham Bros. JD.....	16	3625	6850	3000/162	Douge	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Graham Bros. YDX.....	21	4075	7155	3000/162	Douge	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Graham RA.....	15	3100	6100	2000/164	Lyc S	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Graham RA.....	17	5500	8500	3000/184	Lyc TS	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Graham R30.....	21	6200	9200	3000/210	Lyc TS	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Graham R31.....	25	6500	9500	3000/236	Lyc TS	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Gulider 20.....	17	3550	9000	182	Bud HS6	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Gulider 20.....	21	3550	9000	182	Bud HS6	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Gulider 36.....	25	6000	204	1204	Bud DW6	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Gulider 36.....	25	6000	204	1204	Bud BA6	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Hahn K.....	27	4900	8400	198	Con 48B	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Hahn K.....	35	6300	12000	3000/184	Con 14H	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Hahn O.....	20	4700	7500	144	Her OX	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
1st. Harvester 15.....	16	7725	2400	182	Lyc 48C	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Kiesel.....	21	5600	9000	3450/182	Own AB	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Laralite X161.....	21	2400	3400	190	Own AB	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Mack AB City Type.....	26	120	225	225	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Mack AB City Type.....	25	120	225	225	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Mack AB (gas-elec.).....	29	120	225	225	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Mack AL City Type.....	28	120	225	225	Own AL	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Mack AL Par. Car.....	25	120	225	225	Own AL	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Mack AL (gas-elec.).....	29	120	225	225	Own AL	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Menominee T.....	16	5600	8600	3200/176	Wls Y	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Pierce-Arrow T.....	25	6100	9000	198	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Pierce-Arrow Z.....	25	6100	9000	198	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Rheberger 30.....	25	6200	9700	3500/220	Own AB	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Rheberger 33.....	25	6200	9700	3500/204	Bud BNS	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Reo GR.....	21	7000	10500	3500/204	Bud BNS	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Rephile 81.....	15	2000	1650	220	Lyc 48B	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Royal E.....	29	7100	6000	3400/220	Wls Z	6-4x5	45	8.5	D. B.L.	Bud	24	288	90	90	
Ruggles 60.....	19	5200	9000	180	Own AB	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Ruggles 68.....	25	6700	2070	2700/210	Own AB	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Ruggles 70.....	29	7000	6000	2070	Con 12T	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Safeway 6 Wh Tr 64.....	26	10000	10000	224	Con 15H	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Talb. City DW.....	26	7500	11600	4100/210	Own TW	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Seiden Pneumatic.....	18	4075	8000	3000/210	Con 14H	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Studebaker Roadmaster.....	15	4525	7035	2500/158	Own BB	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Studebaker 75.....	22	5400	8500	3100/184	Own BB	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Studebaker 75 J.R.....	12	4400	7100	2700/168	Own BB	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Studebaker 75 Special.....	20	4600	8500	3100/184	Own BB	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Twin Coach.....	40	14600	22100	4100/210	Own BB	6-3/4x5	46	8.5	D. B.L.	Bud	24	288	90	90	
Ward La France 3B.....	26	6300	9700	3400/221	Wau DU	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Ward La France 4B6.....	25	6600	10000	3400/221	Wau GQL	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
White 50B.....	29	6944	10000	3400/221	Own GRB	6-4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
White 54.....	21	9000	17000	4100/210	Own GRB	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Yellow Coach 1.....	21	5040	8000	3600/210	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Yellow Coach 2.....	17	5040	9100	4000/210	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Yellow Coach 3.....	28	6750	13500	6400/225	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Fellow Coach Z.....	29	7515	12500	4500/200	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Fellow Coach Z.....	67	7515	13885	6370/200	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Yellow Coach Z. Gas Elec.	33	7380	12210	4300/230	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	
Yellow Coach Z. Gas Elec.	66	10350	17350	7000/230	Yell	6-3/4x5½	46	8.5	D. B.L.	Bud	24	288	90	90	